

**DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT  
COMMUNITY DEVELOPMENT ADMINISTRATION  
SINGLE FAMILY HOUSING**

**100 COMMUNITY PLACE  
CROWNSVILLE, MARYLAND 21032**

**STATE WEATHERIZATION CONTRACTOR  
PROGRAM OPERATIONS MANUAL**

Revised April 2012

The Maryland Department of Housing and Community Development (DHCD) pledges to foster the letter and spirit of the law for achieving equal housing opportunity in Maryland.

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# STATE WEATHERIZATION CONTRACTOR PROGRAM OPERATIONS MANUAL

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## **CHAPTER 1**

### **INTRODUCTION AND PROGRAM OVERVIEW**

#### **A. The Weatherization Assistance Program Background**

The legislative and regulatory history of the Weatherization Assistance Program (WAP) for low income persons began on January 4, 1975 with passage of the Emergency Energy Conservation Services (EECS) Program as part of the Economic Opportunity Act. The program was originally administered by the Community Services Administration (CSA) but was transferred in 1977 to the United States Department of Energy (DOE). Authority for DOE's WAP is found in Title IV, Part A, of the Energy Conservation and Production Act of 1976 which also provides for the program's administrative procedures.

In 1977, President Carter proposed the National Energy Act, which passed as the National Energy Conservation Policy Act (NECPA) in November, 1978. The Act contains, along with other conservation programs, provisions for weatherization grants to low income households. The purpose of the program is to aid low income homeowners and renters by installing energy conservation materials in their dwelling units.

The DOE makes weatherization grants directly to states. The Governor then designates a Department within State government to serve as the administering agency for the WAP.

Recently the State was designated as the provider of the low-income energy efficiency program for the EmPOWER Act throughout the State. The EmPOWER Maryland Energy Efficiency Act of 2008 was a directive that the utility companies achieve a 15% reduction in per capita electricity consumption and peak demand by the end of 2015. The Public Service Commission (PSC) oversees the program for the partnering utility companies (BGE, Delmarva Power, Allegheny Power, PEPCO and SMECO). The partnering utility companies pay a percentage into the fund for the low-income energy efficiency program and the Department of Housing and Community Development (DHCD), administers the program in Maryland.

#### **B. Description of the Maryland Weatherization Assistance Program**

Currently Local Weatherization Agencies (LWA) manage the program, by County, for the DOE WAP Program. Local government agencies interested in operating the program were invited to apply for the program and DHCD held a competition to select nonprofit agencies based on experience, capacity and capability in local political subdivisions not served by a local government agency. The SWC will continue to manage the WAP program for their assigned counties.

The State Weatherization Contractor (SWC) and the State Weatherization Regional Contractor (SWRC) will provide weatherization services to those counties not currently served by a LWA or where additional work is required in those areas that are under performing. The SWC will work across the state and provide weatherization services in those areas with the greatest need. The SWRC will work in the utility area where they have been assigned. They will provide weatherization services throughout the utility provider's service territory.

WAP works closely with each of these local agencies to ensure that only the highest quality service is offered and resource accountability exists. A complete list of the local agencies and their service territories can be found in Section IV.

#### **C. State Administration**

The State's staff provides the management, technical assistance and administrative support for the program. All changes or adjustments to the WAP program (i.e. income level, assistance per dwelling unit, etc.) mandated by EmPOWER are incorporated in this manual.

WAP staff prepares and submits a Plan to the PSC for their review and approval. This Plan outlines the method for delivering services during the WAP program year, July 1 to June 30. Once the Plan is approved, WAP processes the Weatherization Assistance Agreements (WAA) for the SWC and WERC.

SWCs and WERCs are required to perform an energy audit for each home weatherized using Hancock Energy Audit Tool (HEAT). HEAT is an extension of the Hancock Energy Software (HES) the program uses for electronically managing the program. The State will provide Dwelling Unit Report (DUR) information for verification and inclusion into the audit intake information portion. The HEAT audit will include the demographic information regarding the family, a composite of type of home served, a detailed accounting of the costs to provide the services, and a breakdown of which funding source is charged with the costs. This document is used as the invoice for reimbursement of costs incurred by the agency in providing services to the home. Each HEAT audit develops a Job Work Order detailing the pre and post condition of the home, and outlines the strategies used by the SWC to provide the most cost effective services available. WAP staff uses this information in determining progress toward meeting production goals. The staff also compiles this data so it can be reported to the EmPOWER partnering utilities and the PSC in the Quarterly Reports.

#### **D. WAP Network Training and Skills Capacity**

To achieve the goal of “standardizing” services throughout the State, individuals must attend training sessions approved by DHCD. The individual must attend both classroom and laboratory sessions and learns how to investigate the many aspects of a dwelling unit's construction and its use of energy. Auditors and Quality Control Inspectors must also be Building Performance Institute (BPI) certified. Training is a reimbursable expense and will be reimbursed by the State.

#### **E. Program Operations Manual Development**

This Program Operations Manual (POM) is the State's attempt to consolidate all policies appropriate to the operation of WAP into a concise, easy to use document. It is intended that this document be an ever-changing reference guide to assist program managers in their efforts to meet the goals and objectives of the program.

The remaining sections of this manual describe the many requirements each weatherization contractor must adhere to when operating the WAP. As federal or State requirements necessitate, WAP will periodically update the information in this manual.

## **CHAPTER 2**

### **DEFINITION OF TERMS**

In order to clarify the policy and procedures contained in the POM, it is understood that the following definitions apply throughout:

<b>Building Envelope:</b>	The area of the building that encloses the conditioned space. Except for the following situations, only the exterior four walls to the ceiling under the attic and the floor above the unheated basement area are considered part of the building envelope. The floor of a unit built on stilts or is above an unheated crawl space is considered a part of the building envelope. The roof of a building that has no ceilings (or that is part of the ceiling) is considered part of the building envelope
<b>Certification:</b>	An independent review of the application and supporting documentation. This review is a final determination of either eligibility or denial. Someone other than the original intake worker completes the certification.
<b>Dwelling Unit:</b>	A house, including a stationary mobile home, an apartment, a group of rooms, or a single room occupied as separate living quarters.
<b>Dwelling Unit Report (DUR): AKA: (DURI)</b>	A one page summary sheet submitted for each dwelling unit completed by a SWC that provides customer demographics, information regarding the costs associated with service delivery.
<b>Elderly Person:</b>	A person who is sixty years of age or older.
<b>Family Unit:</b>	All persons living together in a dwelling unit.
<b>Funding Source:</b>	The source of WAP funds identified in the Weatherization Assistance Agreement used to reimburse the SWC for costs associated with providing services to eligible low-income customers.
<b>Handicapped</b>	Any individual who is [1] handicapped as defined in Section 7 (6) of the Rehabilitation Act of 1973; [2] under a disability as defined in Section 1614 (a) (3) (A) or 223 (d) (i) of the Social Security Act or in Section 102 (7) of the Developmental Disabilities Services and Facilities Construction Act; or [3] who is receiving benefits under Chapter 11 or 15 of Title 38, U.S.C.
<b>Incidental Repairs:</b>	Those repairs necessary for the effective performance or preservation of weatherization materials. Such repairs include, but are not limited to framing or repairing windows and doors, and providing protective materials, such as paint, used to seal materials installed under this program.
<b>In-kind Contribution:</b>	In-kind contributions represent the value of non-cash contributions provided by the grantee, and non-Federal parties. In-kind contributions may be in the form of charges for real property and non-expendable personal property and the value of goods and services directly benefiting and specifically identifiable to the project or program.
<b>Intake:</b>	All application processes necessary to enable certification of application. This is completed by the State and will be provided to the SWC.
<b>Landlord/Tenant Agreement:</b>	Document required for completed application when applicant is a renter. This document verifies that both landlord (homeowner) and applicant understand their rights and obligations. No work can be performed on rental units until this form is completed.

<b>Leverage Activity:</b>	The actions of the State and local agencies to obtain and account for resources provided to supplement or supplant federal funding being used to weatherize dwelling units.
<b>Local Weatherization Agency (LWA)</b>	Also referred to as the "sub-grantee", "service delivery network member" and "local service provider", is the organization or local government responsible for providing direct WAP services in a specific political subdivision
<b>MEAP Certification:</b>	A final determination concerning program income eligibility of a customer by the Maryland Energy Assistance Program, resulting in the customer's receipt or denial of energy assistance benefits.
<b>WAP Certification:</b>	A final determination concerning program eligibility based on income and ownership, resulting in the customer's receipt or denial of weatherization benefits.
<b>Performance Period:</b>	The time period in which the WAP funds are available for use by the SWC. No funds can be expended before the start date of the performance period and may not be expended after the close of the period.
<b>Re-certification:</b>	Re-certification occurs when an application and its supporting documentation are more than twelve (12) months old and the SWC has not "begun work" on the dwelling unit. A second confirmation of the information must be performed. The applications re-certified are again available for inspection and receipt of weatherization.
<b>Re-weatherized Unit:</b>	Any unit receiving weatherization services within the past 3 years and which has received additional services under existing grants or allowed by current DOE regulations.
<b>Separate Living Quarters:</b>	Living quarters in which the occupants do not live and eat with any other persons in the structures and which have either a direct access from the outside of the building or through a common hall or complete kitchen facilities for the exclusive use of the occupants. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.
<b>Single-Family Dwelling Unit:</b>	A structure containing no more than one dwelling unit.
<b>Title IV:</b>	To be used interchangeably with those income groups known as AFDC Recipients (Aid to Families with Dependent Children).
<b>Title XVI:</b>	To be used interchangeably with those income groups known as SSI (Supplemental Security Income).
<b>Unobligated Balance:</b>	The portion of the funds authorized that has not been obligated by SWC and is determined by deducting the cumulative obligations from the cumulative funds authorized.
<b>Work Begins (Work Begun):</b>	This is defined as the point of estimation for a dwelling unit outreach or intake is not considered within the confines of the definition of weatherization work beginning.

## CHAPTER 3

### ALLOCATION FORMULA & WEATHERIZATION ASSISTANCE AGREEMENT

#### A. Funding Allocation

WAP provides its federal and special funds to the counties through 18 local agencies based on poverty guidelines as established by the U.S. Office of Management and Budget (OMB) and poverty concentration as reflected in statistics from the 2000 U.S. Census. The following is a list of the political subdivisions and their percentage of low-income population base:

TOTAL FUNDS:	57,500,000
Overall Administrative, Training, EM&V Costs, Quality Control and Intake Costs	12,500,000
Benefit Funds:	45,000,000

Benefit allocation and production numbers for 2012 are based on information provided in DHR's EUSP Report for 2011 that demonstrates customers by Utility by County. The 2013 and 2014 funding numbers listed below are projections that may be adjusted, based on subsequent EUSP annual reports. In the event that the actual statistics are not available from the Maryland Department of Human Resources at least 60 days prior to the start of each year for the 2013 and 2014 program years, the Program will proceed based upon the estimates as provided by the Maryland Department of Human Resources in their Annual Plan.

**\*Contribution by Utility**

UTILITY BUDGET for SINGLE FAMILY	YEAR 2012	YEAR 2013	YEAR 2014	TOTAL
BGE	\$ 7,087,500	\$ 11,981,250	\$ 11,981,250	\$ 31,050,000
PE	\$ 1,443,750	\$ 2,440,625	\$ 2,440,625	\$ 6,325,000
PEPCO	\$ 1,968,750	\$ 3,328,125	\$ 3,328,125	\$ 8,625,000
DELMAVA	\$ 1,968,750	\$ 3,328,125	\$ 3,328,125	\$ 8,625,000
SMECO	\$ 656,250	\$ 1,109,375	\$ 1,109,375	\$ 2,875,000
PER YEAR TOTALS:	\$ 13,125,000	\$ 22,187,500	\$ 22,187,500	\$ 57,500,000

**\*NOTE:** Counties highlighted in color below are allocated EmPower Maryland Funds solely by one participating Utility with the corresponding color in the chart above. Counties not color coded receive Empower Maryland funds from more than one participating Utility. PHI colored coded in red represents PEPCO and Delmarva.

**\*\*From EUSP 2011 Annual Report**

UTILITY	EUSP Bill Payment HH's	Share
BGE	68,426	54%
PE	14,375	11%
PEPCO	18,549	15%
Delmarva	18,822	15%
SMECO	5,932	5%
TOTALS:	126,104	100%

**\*\*NOTE:** Basing the EmPower Maryland funds to the percentage of customers served by DHR-OHEP through the EUSP program results in a greater share of PHI's contribution (greater than 50%) to the Delmarva Eastern Shore Counties and thereby lesser allocation to Montgomery County and Prince George's County.

Benefit Allocation by Jurisdiction		
COUNTY	EMPOWER	Number Units based on Average cost of \$4,500
<b>Allegany</b>	\$ 1,687,876	<b>375</b>
<b>Anne Arundel</b>	\$ 2,304,528	<b>512</b>
<b>Baltimore County</b>	\$ 5,023,153	<b>1,116</b>
<b>Calvert</b>	\$ 485,284	<b>108</b>
Calvert - BGE	\$ 89,496	<b>20</b>
Calvert - SMECO	\$ 395,788	<b>88</b>
<b>Caroline</b>	\$ 544,800	<b>121</b>
<b>Carroll</b>	\$ 1,119,635	<b>249</b>
Carroll - PE	\$ 218,990	<b>49</b>
Carroll - BGE	\$ 900,645	<b>200</b>
<b>Cecil</b>	\$ 1,418,413	<b>315</b>
<b>Charles</b>	\$ 916,304	<b>204</b>
<b>Dorchester</b>	\$ 910,139	<b>202</b>
<b>Frederick</b>	\$ 1,238,199	<b>275</b>
Frederick - PE	\$ 1,237,844	<b>275</b>
Frederick - BGE	\$ 355	<b>0</b>
<b>Garrett</b>	\$ 936,561	<b>208</b>
<b>Harford</b>	\$ 1,924,137	<b>428</b>
Harford - BGE	\$ 1,802,354	<b>401</b>
Harford - Delmarva	\$ 121,783	<b>27</b>
<b>Howard</b>	\$ 1,364,644	<b>303</b>
Howard - PE	\$ 5,509	<b>1</b>
Howard - BGE	\$ 1,359,135	<b>302</b>
<b>Kent</b>	\$ 389,705	<b>87</b>
<b>Montgomery</b>	\$ 3,236,509	<b>719</b>
Montgomery - PE	\$ 211,415	<b>47</b>
Montgomery - BGE	\$ 192,488	<b>43</b>
Montgomery - PEPCO	\$ 2,832,606	<b>629</b>
<b>Prince George's</b>	\$ 4,862,831	<b>1,081</b>
Prince George's - BGE	\$ 882,887	<b>196</b>
Prince George's - PEPCO	\$ 3,917,394	<b>871</b>
Prince George's - SMECO	\$ 62,550	<b>14</b>
<b>Queen Anne's</b>	\$ 369,289	<b>82</b>
<b>St. Mary's</b>	\$ 875,358	<b>195</b>
<b>Somerset</b>	\$ 538,711	<b>120</b>
<b>Talbot</b>	\$ 88,839	<b>20</b>
<b>Washington</b>	\$ 651,805	<b>145</b>
<b>Wicomico</b>	\$ 1,838,565	<b>409</b>
<b>Worcester</b>	\$ 529,756	<b>118</b>
<b>Baltimore City</b>	\$ 11,744,959	<b>2,610</b>
<b>TOTAL</b>	\$ 45,000,000	\$ 10,000

## **A. Weatherization Assistance Agreement**

Once funds are allocated by utility service territory, and the Department has determined the SWCs and WERCs that will provide WAP services in each subdivision, a Weatherization Assistance Agreement (WAA) is executed with each contractor. This agreement outlines the services between the Department and the State Weatherization Contractor (SWC) and Weatherization State Regional Contractor (WERC) and conveys the program requirements including funding amounts, reporting requirements, and performance periods.

The WAA, at the discretion of the DHCD may be amended at any time during its term to increase or decrease funds, add or eliminate funding sources, increase or decrease performance periods, or make changes in operation not covered by policies and procedures.

## **CHAPTER 4**

### **LOCAL WEATHERIZATION AGENCY NETWORK & PROGRAM CODES**

#### **A. Local Weatherization Agency Network**

The WAP Contact Information document provides the names of the organizations providing services throughout the State; the names, addresses and telephone numbers for key staff in each organization; FAX numbers; service area and major utility companies providing services in the area. This document will be updated when contact information changes. It is the responsibility of the SWC to inform DHCD of any changes to their contact information.

#### **B. Program Codes**

The WAP requires several forms to be retained in customer files to document program eligibility, service delivery and resource accountability. Many of these forms require similar information to be provided in code. Most codes coincide with those used by the Maryland Energy Assistance Program (MEAP), WAP's primary referral source.

Codes used for the National Energy Audit Tool (NEAT) and the Hancock Energy Audit Tool (HEAT) coincide with the computer program used to determine savings to investment ratios for service delivery. The HEAT Audit Manual should be used to explain the codes required by the software.

Codes for the Dwelling Unit Report (DUR) provided by the State also coincide with the HEAT Audit. A legend is provided at the bottom of the DUR that describes the codes to be used in completing the document.

The following are codes to be used when completing the necessary program forms:

- 1. Property Ownership Codes**

Homeowner	1
Renter (single family)	2
Renter (multi-family)	3
Renter (non-eligible)	4
- 2. Funding Source Identifier Codes**

HHS	1
DOE	2
State Funds	5
Baltimore Gas and Electric	8
Washington Gas	9
Chesapeake Utilities	10
Electric Universal Service	11
- 3. County Code Numbers**

Allegany County	01
Anne Arundel County (MEC)	02
Baltimore County	03 <b>this will change</b>
Calvert County	04
Caroline County	05
Carroll County	06
Cecil County	07

Charles County	08
Dorchester County	09
Frederick County	10
Garrett County	11
Harford County	12
Howard County	13
Kent County	14
Montgomery County	15
Prince George's County	16 <b>this will change</b>
Queen Anne's County	17
St. Mary's County	18
Somerset County	19
Talbot County	20
Washington CAC	21
Washington (MEC)	26
Wicomico County	22
Worcester County	23
Baltimore City	30

### **C. Job Control Number**

Each customer file must be assigned a Job Control Number that uniquely identifies the file from all others completed by the SWC. **DHCD will be providing further guidance on obtaining Job Control Numbers.**

## **CHAPTER 5**

### **CUSTOMER DISTRIBUTION PROCESS**

#### **A. Customer Distribution Process**

The State will coordinate the applicant intake and provide the approved applicant information to the State Approved Applicants List provided in Hancock. The SWC and WERC will access the list and take the applicant off of the list and indicate them as 'in process'. The State Contractor will then send the listed applicant an eligibility notification letter and schedule an audit date with the homeowner.

The State will provide intake information on the Approved Applicants List that will need to be verified by the auditor at the audit interview. The following applicant information will be provided:

1. An application for the Maryland Energy Assistance Program (MEAP) (Form V-D) or a similar application provided by the State which includes;
  - a. Applicant's Name
  - b. Applicant's Address
  - c. Applicant's Telephone Number
  - d. Social Security Number
  - e. Other information as determined by the SWC.
2. Acceptable proof for property ownership or verification using Maryland Department of Assessment and Taxation, Real Property Data Search at the following website:  
[http://sdatcert3.reiusa.org/rp\\_rewrite/](http://sdatcert3.reiusa.org/rp_rewrite/);
3. A signed Landlord/Tenant Agreement if the applicant is a renter (see Rental Property Investment Program in Chapter 5, Section J);
4. All required income verification forms. See Sections B through Q of this chapter for details about verification and documentation of income.
5. Declaration of Income Form for Social Security and SSI Recipients when required (Form V-B and Form V-I).
6. The applicant must be the head of a household or the spouse of the head of the household. A proxy (a person 18 years or older) may file an application on behalf of the applicant (see Application by Proxy in Chapter 5, Section N). The applicant must be provided a copy of the Personal Data Collection Notice (Form V-C). Intake worker must provide an easy to understand explanation of this Executive Order.
7. The applicant must provide proof of identity and residency. For proof of identity, photo identification is preferred. Proof of residency must show the applicant's delivery address. A driver's license may be accepted as proof of both residency and identity provided that the license shows the current delivery address. A letter with the applicant's current delivery address may be accepted as proof of residency. A copy of the documents must be retained in the applicant's file.
8. The applicant must provide the names, ages, social security numbers and family relationship for all household members.
9. The applicant must provide documentation for income received by all household members.
10. No asset test is required to determine eligibility.
11. A Priority classifications will be determined for the applicants as follows:
  - a. Households with high energy use according to utility information;
  - b. Households with a high energy burden;
  - c. Elderly;

- d. Handicapped;
- e. Homeowners;
- f. Households with children;
- g. Households with incomes below poverty levels.

Renters in both single and multi-family buildings are eligible; however, homeowners have a higher priority to receive services.

Once the Approved Applicant has been selected from the list and the Eligibility letter has been sent and the audit has been scheduled the SWC must verify that the dwelling unit has not been weatherized in the last 5 years by visually assessing the home for installed weatherization measures. If weatherization measures have been installed they should notify DHCD who will check the dates against the data base. This step is a double check step since the home should already have been verified for previously weatherized services. If found to have been previously weatherized, the dwelling is not eligible for weatherization services.

A client file shall be created by the contractor which includes the Job Control Number that will be recorded on the associated documents and forms:

- a. Application intake information data sheet (provided at the Approved Applicant List)
- b. Copy of the HEAT Audit
- c. Copy of Work Order
- d. Signature sheet signed off by client
- e. Other documents related to the customer file.

The SWC must ensure that all information is complete, and all required documents are in the file.

### **C. Request for Additional Information**

If the applicant does not present all required documentation during the initial interview, the Request for Additional Application Information Form (Form V-G) will be used to document other information needed to complete the determination for program eligibility. The applicant will be given this form with instructions to provide the missing documentation within 30 days of that date. A copy of the Request for Additional Application Information Form must be retained in the applicant's file.

If the need for additional documentation is discovered after the interview, then the Request for Additional Information Form will be completed, mailed to the applicant, and a copy placed in the applicant's file. In this case, the applicant's file is placed in the "Pending" status until the information is returned, at which time the intake worker completes the application process. If the information is not returned by the date requested, the denial process must be implemented.

### **E. Eligibility Determination**

Although applicant eligibility determination will be completed by others prior to issuing the home for work, it is important that the SWC be aware of and understand the requirements for eligibility so that the SWC may review and use for possible outreach situations.

If an SWC has an opportunity to recommend an applicant to the program they should direct the applicant back to the Maryland Department of Housing and Community Development Weatherization Assistance Program at <http://www.mdhousing.org/Website/Programs/wap/Default.aspx>. The following information is provided for information only and is not a requirement of the SWC.

An applicant will be eligible for WAP if the applicant:

1. Meets income eligibility requirements regardless of other non-income financial resources;
2. Provides proof of ownership of the dwelling unit, and in the case of renters, a Landlord/Tenant Agreement Form; and
3. The dwelling unit has not been weatherized in the past 5 years.

A dwelling unit shall be eligible for WAP if it is occupied by a family unit:

1. Whose income is at or below 200% of the poverty level; or
2. Which contains a member who has received cash assistance payments under Title IV or XVI (AFDC or SSI) of the Social Security Act or applicable state or local law during the twelve (12) month period preceding the determination of eligibility.

The following poverty income guidelines are effective for 2012 and are to be used by each certifying agency for an applicant's income eligibility. Poverty income guidelines are generally adjusted once a year

<b><u>Size of Family Unit</u></b>	<b><u>Monthly Income Level 200% of Poverty</u></b>	<b><u>Annualized Income 200% of Poverty</u></b>
1	1,805	21,600
2	2,428	29,140
3	3,052	36,620
4	3,675	44,100
5	4,298	51,580
6	4,922	59,060
7	5,545	66,540
8	6,618	74,020
For each additional person add:	623	7,480

## **I. Renters**

Renters who pay heating costs either directly or indirectly, will be eligible to receive weatherization services, however, priority is given to eligible homeowners in priority classifications.

If a renter in a duplex or a four unit building applies, the entire building may be weatherized as long as 50% of the tenants are certified as income eligible. If a building contains three (3) or more than four (4) units, the entire building may be weatherized if 66% of the tenants are certified as income eligible (See CFR 44.22 - DOE Final Rules & Regulations).

## **CHAPTER 6**

### **CUSTOMER DEFERRAL, DENIAL AND HEARING PROCESS**

#### **A. Customer Deferral Process**

The decision to defer work in a dwelling or, in extreme cases, deny weatherization services, is difficult but necessary in some cases. This does not mean that assistance will never be available, but that work must be postponed until the problems can be resolved.

Deferral conditions may include:

1. **Condemned** - The house has been condemned or is scheduled for demolition or electrical, heating, plumbing, or other equipment has been "red tagged" by local or state building officials or utilities.
2. **Building Structure** - The building structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that failure is imminent and the conditions cannot be resolved cost-effectively. The energy auditor should report these findings to his/her supervisor. If corrective action cannot be arranged, the SWC should consult with the DHCD field representative before either proceeding with or denying weatherization.
3. **Extensive work scope** - the building is in need of extensive rehabilitation, and no such rehabilitation has been provided for.
4. **Health or safety hazard** - when, in the judgment of the energy auditor, any condition exists which may endanger the health and/or safety of the work crew or subcontractor, the work should not proceed until the condition is corrected.
5. **Biologicals and Unsanitary conditions** - The house has sewage or other sanitary problems that would further endanger the client and weatherization installers if weatherization work were performed.
6. **Mold and Moisture** - Moisture problems are so severe they cannot be resolved under existing health and safety measures and with minor repairs. Or that there is concern that mold and existing moisture conditions would be made worse as a result of providing weatherization services. In such cases, a notice must be provided to occupants of the agency's reason for deferring assistance.
7. **Excessive Clutter or Hoarding Conditions** – If the house has excessive clutter that would impede the installation of the weatherization work performed.
8. **Unsafe or inoperable heating appliance** - Dangerous conditions exist due to high carbon monoxide levels in combustion appliances, and cannot be resolved under existing health and safety measures.
9. **Uncooperative Client** - The client is uncooperative, abusive, or threatening to the crew, subcontractors, auditors, inspectors, or others who must work on or visit the house. When an eligible client is uncooperative with the SWC, either in demanding that certain work be done and refusing higher priority work which is needed (e.g., demanding only windows), by being abusive to the work crew or subcontractor, or by being unreasonable in allowing access to the unit, every attempt should be made to explain the program and the benefits of the work. If this fails, work must be suspended and the DHCD field representative consulted.
10. **Lead Based Paint Hazard** - The extent and condition of lead-based paint in the house would potentially create further health and safety hazards. If there is concern that weatherization services would disturb loose, peeling, flaking, and chipping paint, could spread paint dust and

related debris and possibly cause harm to occupants. In such cases, a notice must be provided to occupants of the agency's reason for deferring assistance.

11. **Illegal Activities** - Illegal activities are being conducted in the dwelling unit.
12. **Asbestos** - The house has unsafe conditions of asbestos that would further endanger the client and weatherization installers if weatherization work were performed.
13. **Pests** -An infestation of pests that cannot be reasonably removed or poses health and safety concerns for workers.
14. **Client Health** - The client has known health conditions that prohibit the installation of insulation and other weatherization materials.
15. **Structure for sale** - building or dwelling unit that is for sale, or subject to bankruptcy or foreclosure.
16. **Legal dispute** - building or dwelling unit where ownership cannot be confirmed due to a legal dispute. Clear title must be established before services can be provided.
17. **Conflict of interest or appearance of conflict** - when the structure is owned, managed or occupied by an employee, board member, officer or relative of a SWC employee, prior approval must be obtained from the regional supervisor before any work is started. If the client is a board member or senior staff member of the SWC prior approval will not be granted.

When a home has been deferred the client must be notified in writing of the deferral and what corrective actions are necessary for weatherization to continue. Additionally the client should be informed of the process for them to appeal to a higher level in the organization.

In unusual situations not covered above or where other problems of a unique nature exist, the DHCD field representative should be consulted.

If obvious discrepancies are found between the information supplied by the client on the application and observed conditions at the time of weatherization, the SWC must resolve these questions prior to weatherization. Some examples of discrepancies are an obvious change in the client's income, e.g., an unemployed client who is now back to work, a difference in the number of persons living in the dwelling unit, (fewer persons than listed, a person or persons not accounted for who may have income), evidence of business being conducted in the unit, etc.

If at any time prior to the beginning of the actual weatherization work, the SWC determines that the client is no longer eligible, the unit cannot be weatherized. When a SWC has first-hand knowledge, or reason to believe that circumstances may have changed, the SWC should request an updated application from the client.

## **Procedures for Deferral**

1. The auditor or SWC representative must provide clients with a completed deferral form. If the property is a rental, property owners must receive a copy. The client needs to sign the form and be provided with a copy of the signed form.
2. If the client refuses to sign the form for the auditor, the auditor should contact the SWC. The SWC should attempt to contact the client to clearly explain the reason for the deferral and what corrective actions are necessary for weatherization to continue, if the client still refuses to sign the SWC representative should provide information of the process for them to appeal to a higher level in the organization. If the client still refuses to sign the SWC representative should write in the client signature line that client refused to sign and leave them with a copy of the form.
3. Client files must include a copy of deferral documentation.  
Deferral documentation must include the information in the ***Weatherization Deferral Form***. Local agencies may use this form or equivalent documentation.

4. The project has likely been entered into Hancock by this point; to close it out enter the reason for the deferral in the 'Denied Client' Measure. Note that not all deferral methods have been listed as separate measures, so use one that is close and provide additional information in the comments line

## **B. Customer Denial Process**

Applicants will be denied weatherization assistance if they do not meet the eligibility criteria. The major reasons for denial of assistance are:

1. Total household income exceeds the income guidelines of the program;
2. The applicant did not provide sufficient documentation of the household income or other information within the prescribed time;
3. The dwelling unit has received comprehensive weatherization assistance previously; or
4. Other reasons specific to the case (SWC must specify).

It is not necessary to send denial letters to those households that have applied for assistance but cannot be assisted due to insufficient funding.

If the SWC determines that an applicant or a dwelling unit is ineligible, the applicant shall be notified within 10 working days of that decision. Notification shall include the following:

1. Reason for denial;
2. Specific regulation supporting the denial;
3. Right to appeal the decision and the means to obtain a fair hearing.

The following situations will result in termination of an eligible customer's application. The SWC must follow normal denial procedures when resolving these situations:

1. The applicant moves or the dwelling becomes unoccupied before the weatherization materials are installed, provided the applicant is no longer in contact with the SWC;
2. The dwelling unit is destroyed or rendered uninhabitable before the weatherization materials are installed;
3. The customer does not respond when contacted by the Energy Audit Inspector;
4. The customer intentionally furnished false information on the application form; or
5. The customer requests cancellation before the weatherization materials are installed.

The following procedures must be completed when applications are denied:

1. If documentation indicates that the applicant is ineligible, the intake worker must check "ineligible" in the space provided, and sign/date the form and forward it on to the certifier.
2. If the certifier agrees with the intake worker's decision, he/she dates and signs the "not eligible" space on the application. If the certifier disagrees with the intake worker's decision, he/she consults with the intake worker to resolve the disagreement.
3. A denial letter must be sent to every ineligible applicant within seven (7) calendar days of the date of denial. The denial letter is completed by the Program Coordinator or his/her designee. The letter must include:
  - a. Date
  - b. Applicant's Name
  - c. Applicant's Mailing Address

- d. Explanation of the reason for denial
  - e. Date by which the hearing request must be received (15 days from the date of the notice)
  - f. Name and telephone of SWC contact person
  - g. Signature of SWC designee
4. A copy of the denial letter must be placed in the applicant's file. The file is placed in a separate denial file drawer which is maintained by last name.
  5. If the denied applicant wishes to appeal the SWC's decision, the procedures described in the Review and Hearing Process (Chapter 6, Section B) are to be followed.
  6. In the following situations, denial letters do not need to be sent.
    - a. Denied applications received by the SWC from MEAP. These applications are not counted as "denied" for reporting purposes.
    - b. When it has been determined that the unit have already been weatherized since September 1994
    - c. When a SWC is determining eligibility for a multi-family dwelling, no denial letters should be sent until the eligibility for the entire building is determined.
    - d. If the building is eligible under the 66% rule, no denial letters shall be sent. All applications for the completed multi-family dwelling unit building should be combined in a separate file for the building and placed in the Completed Units File. If the building is determined ineligible under the 66% rule, follow the normal denial procedures (i.e., certify as denied; send denial letters). However, those units that would be denied following normal denial procedures (i.e. over income, insufficient documentation, etc.) will be certified as denied.
    - e. For those applications that cannot be completed by the end of the program year (June 30th), the SWC may decide to either carry forward or deny these applications. If the applications are denied, the SWC must follow the denial procedures previously outlined for those applications that cannot be completed due to lack of funds.
  7. If the applicant does not provide sufficient documentation of total household income or other information necessary to complete the application within 30 days of notification of the applicant, the application must be denied. The SWC must report the application as a denial as soon as all notification timeframes are exhausted (usually fifteen (15) days beyond the normal denial date).

### **C. Review and Hearing Process**

The SWC must attempt to settle all disputes in an informal and timely manner. All WAP applicants are guaranteed access to a fair hearing process in the following situations:

1. The applicant is not satisfied at any point in the process of weatherization service delivery (e.g.; application process through quality control process);
2. The applicant is denied assistance;
3. The applicant is neither certified nor denied assistance within 30 days from the date all required documentation is presented; or
4. The applicant's complaint is not resolved by the SWC's dispute settlement procedures.

The hearing process is multi-leveled. The first level of appeal is a local hearing before a hearing officer designated by the SWC. The second level of appeal is conducted by the state after the applicant's complaint has not been resolved through the local hearing process. All hearings must conform to the following standards:

1. The location must be convenient and accessible to the applicant;
2. Adequate notice must be given to the applicant. The applicant must be given at least 15 working days from the date the Request for Review of Decision (Form VI-C) is sent by the SWC to request for such hearing;
3. Specified time frames must be met;
4. The hearing officer must be a person not involved in the original disputed decision; and
5. The applicant may bring legal counsel, a representative, or other interpreter, and may present evidence and examine witnesses.

Hearings are to be rescheduled for applicants requesting postponements. Two postponements with prior notice are acceptable. If an applicant fails to appear for a scheduled hearing and does not provide notice, the hearing officer may render a decision based on the case file or reschedule the hearing based on adequate cause.

#### **D. Procedures for Informal Dispute Settlement**

The SWC is required to maintain a log of all complaints received. The log must indicate date received; name of applicant or complainant; nature of complaint; date and description of actions taken to resolve the complaint; and the name of the person by whom the action was taken.

#### **E. Procedures for Local Hearings**

1. Applicants, requesting a review of a SWC decision, must request the local hearing within fifteen (15) working days of the date of notification of the decision.
2. Applicants requesting a hearing, due to the SWC's failure to make eligibility determination on their application, may do so any time after 10 days have elapsed from the date that all required documents have been provided to the SWC.
3. Upon receipt of the hearing request form, the SWC enters the request on the SWC hearing log.
4. The local hearing must be held within fifteen (15) calendar days of receipt of the hearing request. Notice that Local Hearing Has Been Scheduled (Form VI-D) should be used to notify the applicant at least ten (10) calendar days in advance of the scheduled hearing.
5. The SWC hearing officer should attempt to resolve the applicant's concerns at the local hearing through review of the applicant's case file and explanation of the appropriate program regulations.
6. Following the hearing, the SWC hearing officer's decision must be issued in writing to the applicant along with request for a State level hearing. (Appeals Hearing Decision Letter (Form VI-E). The decision must be sent within fifteen (15) calendar days of the hearing.

#### **F. Procedures for State Hearings**

1. Applicants who wish to appeal the decision rendered at the local hearing must submit a Request for State Level Hearing (Form VI-F) within fifteen (15) calendar days of the date of the SWC hearing decision letter.
2. Upon receipt of the request for a State Hearing, the SWC completes the hearings log and forwards copies of all case documents to the State WAP.
3. The State Hearing must be held within fifteen (15) calendar days of receipt of the case file from the SWC. The WAP will provide written notification to both the applicant and the SWC of the scheduled time and place of the hearing, at least ten (10) days in advance of the

hearing. (See Form VI-G: Notice that State Level Hearing Has Been Scheduled).

4. A written decision will be rendered by the State Hearing Officer within the 15 days following the scheduled hearing. Copies will be sent to the applicant and SWC.

## **CHAPTER 7**

### **WAP SERVICE DELIVERY PRIORITIES**

#### **A. Single Family Homes**

All weatherization activities performed on single family dwelling units must follow the priorities as indicated in the Home Energy Audit Tool (HEAT) software or as listed on the approved measures list for the specific housing type as established through the auditing protocol. This protocol is supported by the Hancock Energy Audit Tool (HEAT).

The cost of weatherization for single family dwellings cannot exceed an average cost per unit (ACPU) as adjusted from time to time by DOE. The ACPU is determined through a simple calculation - dividing the number of units reported as completed to DOE into the amount of expenditures reported. The average state wide cost per dwelling unit has a soft cap set at \$4,500. For those units that exceed the soft cap, they must be submitted to DHCD with a detailed written explanation for review and approval prior to beginning the work. The Contractor is at risk of not being paid for any of the work performed on any measure.

Measures relating to appliance replacement such as refrigerators, freezers, and window air conditioners are acceptable in addition to the \$4,500 per housing unit price. Electric heat pumps and HVAC replacement would also be acceptable in addition to the \$4,500 per housing unit price but are still subject to review and must receive approval prior to the start of work. Additionally if the audit results in deferral the Contractor is entitled to a \$300 reimbursement for the audit.

Prior to conducting the Audit, the SWC must obtain a copy of the client's utility bill and maintain a copy in the client file. The utility bill must be from one of the participating EmPower utility companies in order to receive EmPower funding for the work. The participating utility companies are: Allegheny Power/Potomac Edison, Baltimore Gas and Electric (BGE), Delmarva Power, Potomac Electric Power Company (PEPCO), and Southern Maryland Electric Cooperative, Inc. (SMECO)

#### **B. Mobile Homes**

Work to be performed on mobile homes must follow the HEAT Audit under the mobile homes tab. The energy audit must be completed on-site. The total cost of weatherization and soft cap is the same as that for Single Family Homes.

#### **C. Multi-Family Dwellings**

SWC may weatherize Multi-family dwellings if they have been approved and are listed on the Approved Applicant List. The homes must be individually metered and the client must provide a copy of their utility bill with the utility bill in the renter's name. The SWC must maintain a copy in their client file. The utility bill must be from one of the participating EmPower utility companies in order to receive EmPower funding for the work.

For your information the following criteria was used when determining eligibility for weatherizing multi-family dwelling units. The total cost of weatherization is the same as Single Family Homes. Service delivery may be performed in one of the following ways:

1. Single Units in a Multi-Family Building  
Single eligible units in multi-family buildings may be weatherized regardless of the eligibility of other units within the building.
2. Duplexes and Four-Unit Buildings (50% Rule)  
Fifty percent of the units in a duplex (1 unit) or four-unit building (2 units) must be occupied by income eligible persons or families for the entire building to be deemed eligible to receive services.

3. Triplexes & Five or More Individual Units (66% Rule)

Sixty six percent of the units in a triplex or five plus units must be occupied by income eligible persons or families for the entire building to be deemed eligible to receive weatherization services. All units must be contained within one structure and must share a common foundation.

#### **D. Energy Audit**

An energy audit must be performed on each dwelling unit receiving WAP services. The purpose of the audit is to record the physical features of the dwelling unit and identify those allowable WAP services that can be installed to reduce the household energy consumption and improve the customer's health and safety. SWCs are required to use staff/contractors certified in BPI Home Energy Analyst and the Department of Energy (DOE) core competency disciplines to perform the audit. SWCs will use the HEAT Software to document the work.

In most cases, the SWC will not have sufficient funds to install all materials and perform all repairs necessary to address the energy conservation needs of the dwelling unit identified through the HEAT audit. The HEAT audit tool will be used to assist the auditor in deciding which services are likely to be the most cost-effective, especially when services must be limited due to funding restrictions. The List of approved measures serves as a simple guide to help the auditor rank service delivery options in priority order based on average savings to investment ratios calculated through the HEAT Audit. The HEAT Audit is the only acceptable audit.

The following are procedures to be adhered to when conducting an Energy Audit:

1. A BPI certified auditor must perform a "mechanical" audit of each home to identify the problems in the building's shell which promote air movement, heat loss and heating system inefficiency. The auditor must use blower doors, furnace efficiency testing equipment and other devices to determine the level of energy efficiency currently existing in the dwelling. The auditor must also assess health and safety issues requiring abatement prior to service delivery. The WAP Audit Approved Measures is completed on-site to document the observations of the auditor. Staff will determine the best method, based on construction type, for treating the problems identified in the HEAT audit, including the selection of materials best suited for correcting the deficiencies. Services to be provided must be included on the List or be modeled in the computer. As indicated on the Approved Measures list, many services must have a demonstrated Savings to Investment Ratio (SIR) of 1.1 or greater to be considered for installation.
2. A "Blower Door" will be used to detect points of infiltration in the dwelling unit. The BPI certified auditor will de-pressurize (or pressurize) the interior of the structure through the use of a large capacity fan, thereby exaggerating the various points of air infiltration in the building's envelope. A pre-test will be performed to calculate air movement throughout the home in three (3) ways: cubic feet per minute (CFM); air changes per hour (ACH); and natural ACH. SWC certified staff and/or their contractors must perform air infiltration reduction and duct leakage reduction using the Blower Door Fan as a guide to identify the leaks in accordance with the BPI Standard. By conducting a pre-test for the dwelling, sealing the leaks in the envelope/duct and conducting a post-test, the SWC can determine the total CFM50 reduction in each dwelling and also ensure that they DO NOT reduce CFM50 below the Minimum Ventilation Rate (MVR). All CFM50 reduction shall calculate ASHRAE 62.2 prior to performing CFM50 reduction.
3. When required, agency staff will procure the services of licensed furnace contractors to clean, tune and modify the heating system to achieve maximum operating efficiency and correct any deficiencies which may affect the health and safety of a family. Staff must perform a post inspection to ensure that contractors performed services in compliance with the standards and operating parameters of the Furnace Retrofit and Replacement Policy.

4. While performing the HEAT audit for each home, the auditor must assess the level and effectiveness of insulation material in the attic, wall and floor areas. The auditor will determine what measures are necessary to increase the “R-value” to the maximum practicable level. If required, additional ventilation will be installed to eliminate potential moisture problems.
5. The auditor must assess what measures are necessary to decrease energy consumption associated with the use of hot water such as:
  - a. Install hot-water pipe insulation
  - b. Install low flow restriction devices on faucets and showers.
  - c. Test gas water heaters for safety; if necessary have licensed contractor clean water heater.
  - d. Reduce temperature of water heaters to lowest practicable level.
6. The auditor will assess the lighting requirements for the home.
7. The auditor will assess these items - windows, doors, set-back thermostats, dampers and other energy conservation related materials - and determine whether their installation will have an SIR of 1.1 or greater.
8. Incidental repairs required to effectively install any materials identified through the HEAT modeling will be performed. The total cost of the materials and labor associated with incidental repairs shall work within the measures and shall an SIR of 1.1 or greater.

## **E. Health and Safety Abatement**

There are health and safety issues to be included in the auditing protocol. The Department of Energy (DOE) is continuing to develop new health and safety regulations to ensure that weatherization activities do not cause or exacerbate health and safety problems for workers and occupants. According to DOE regulations allowable energy related health and safety actions are those actions necessary to maintain the physical well-being of both the occupants and/or weatherization workers where:

- Costs are reasonable **AND**
- The actions must be taken to effectively perform weatherization work; **OR**
- The actions are necessary as a result of weatherization work.

Health and safety measures are allowed to be conducted only where energy efficiency measures are identified for installation. We need to ask:

- What must we do within reasonable costs to get the home to a point we can go forward with weatherizing, where the weatherization work will be lasting and effective?
- What must we do to ensure that the weatherization work we conduct does not create a health or safety problem for the occupant?

In order to answer the questions we have developed guidelines to address thirteen (13) health and safety issues to be included in the auditing protocol:

1. Solid Fuel Heating (Wood Stoves, etc.)
2. Electrical, Knob-and-Tube Wiring and other than Knob-and-Tube Wiring
3. Space Heaters; Stand Alone Electric, Unvented Combustion and Vented Combustion
4. Carbon Monoxide Spillage
5. Building Structure and Roofing
6. Window and Door Replacement
7. Appliances and Water Heaters
8. Sump-pumps

9. Lead based Paint hazards
10. Mold and Moisture
11. Code Compliance
12. OSHA
13. Ventilation per ASHRAE 62.2

Health and safety costs will be tracked as a separate category and limited to \$500 of average cost per unit, thereby excluding such costs from the average cost per unit calculation (\$4500 - \$500 for Health and Safety - \$300 audit = \$3700 for benefit). This separate budget category allows these costs to be isolated from energy efficiency costs during program evaluations; they will not have to be cost justified through the energy audit. The \$500 of average cost per unit is an averaged based on the actual average cost per unit and the State will track this average.

Those measures considered as health and safety measures have been defined separately from those measures installed as incidental repairs. Incidental Repairs are defined as those repairs necessary for the effective performance or preservation of weatherization materials. The cost of an incidental repair must be included in the cost of the package of measures installed in the home and the average unit cost must meet the SIR of 1.1

Health and Safety measures are defined as those measures specific to ensuring the health and safety of the occupant or worker. Health and safety measures are those parts of an efficiency measure that would not normally be considered a component of the efficiency measure. If the health and safety activity is not a direct component of the efficiency measure then it should be charged as a health and safety cost. Typical measures considered as health and safety:

- Working Lead Safe
- Replacing Knob and Tube wiring for attic insulation installation
- Installing missing smoke/CO detectors or replacing inoperable ones.

Note that replacing operable smoke/CO detectors is not an allowable cost/measure.

Typical measures considered as incidental repair:

- Repairing windows or doors which could not otherwise be caulked or weather-stripped
- Installing flue liners or replacing piping as part of a heating system installation.

WAP is not a rehab program, minor repairs and installations may be conducted only when necessary to effectively weatherize a home.

Typical measures not allowed under the weatherization program:

- Installation of stairs or porches
- Toilet or sink replacement

Deferral may be necessary if health and safety issues cannot be adequately addressed. The decision to defer work in a dwelling is difficult but necessary in some cases. WAP will refer these cases to appropriate rehabilitation programs or other authority as deemed necessary based on the problems identified, as in the case of a gas leak. WAP will be postponed until the problems are resolved and/or alternative sources of help are found. Any conditions that exist, which may endanger the health and/or safety of the worker or occupants, should be deferred until the conditions are corrected. Deferral may also be necessary where occupants are uncooperative, abusive or threatening.

The following is a brief discussion of the health and safety conditions and how they will be addressed.

#### **Air Conditioning and Heating Systems:**

- 'Red tagged', inoperable or nonexistent heating systems replacement, repair or installation is allowed when it meets the SIR of 1.1. If an SIR of 1.1 is not attainable then other funds may be leveraged.

Many furnaces may not be included in the overall measures. Discuss and provide information on appropriate use and maintenance of the units and proper disposal of bulk fuel tanks when not removed.

#### **Appliances and Water Heaters:**

- Replacement of water heaters is allowed on a case by case basis. Repair and cleaning are an allowable expense. For gas hot water heaters combustion safety testing is required. Discuss and provide information on appropriate use, maintenance and disposal of appliances/water heaters.
- Replacement and installation of refrigerators and freezers is allowed only under EmPower funding. Appliance replacement is not an allowable DOE expense.

#### **Asbestos – in siding, walls, ceilings, etc.:**

- Removal of siding is allowed to perform energy conservation measures. All precautions must be taken not to damage siding. Asbestos siding should never be cut or drilled. It is recommended, where possible, to insulate through the home's interior. If asbestos siding is suspected inform the client and present how precautions will be taken. Practice safe siding removal and replacement.

#### **Asbestos – in vermiculite**

- When vermiculite is present, unless testing determines otherwise, take precautionary measures as if it contains asbestos, such as not using blower door test and utilizing personal air monitoring while in attics. Where blower door tests are performed, it is a best practice to perform pressurization instead of depressurization. Encapsulation by an appropriately trained asbestos control professional is allowed. Removal is not allowed. Asbestos Hazard Emergency Response Act of 1986 (AHERA) certified prescriptive sampling is allowed by a certified tester. Clients should be instructed to not disturb suspected asbestos containing material. Provide asbestos safety information to the client. Formally notify the client if test results are positive for asbestos and have the client sign a form that they have been notified.

#### **Asbestos – on pipes, furnaces, other small covered surfaces**

- Assume asbestos is present in covering materials. AHERA testing is allowed by a certified tester. Encapsulation is allowed by an AHERA asbestos control professional and should be conducted prior to blower door testing. Removal may be allowed by an AHERA asbestos control professional on a case by case basis. Clients should be instructed to not disturb suspected asbestos containing material. Provide asbestos safety information to the client. Formally notify the client if test results are positive for asbestos and have the client sign a form that they have been notified.

#### **Biologicals and Unsanitary Conditions –**

##### **Odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.**

- Remediation of conditions that may lead to or promote biological concerns and unsanitary conditions is allowed. Addressing bacteria and viruses is not an allowable cost. Deferral may be necessary in cases where a known agent is present in the home that may create a serious risk to occupants or weatherization workers. Also see mold and moisture guidance below. Inform the client of observed conditions. Provide information on how to maintain a sanitary home and steps to correct deferral conditions as indicated in the weatherization program operations manual.

#### **Building Structure and Roofing**

- Building rehabilitation is beyond the scope of the Weatherization Assistance Program. Homes with conditions that require more than incidental repair should be deferred. Visually inspect the home to ensure that access to areas necessary for weatherization is safe for entry and performance of

assessment, work and inspection. Also see mold and moisture guidance below. Notify the client of structurally compromised areas. Provide information on steps to correct deferral conditions as indicated in the weatherization program operations manual.

### **Code Compliance**

- Correction of preexisting code compliance issues is not an allowable cost other than where weatherization measures are being conducted. State and local codes must be followed while installing weatherization measures. Condemned properties and properties where 'red tagged' health and safety conditions exist that cannot be corrected under this guidance should be deferred. Inform the client of observed code compliance issues. Provide information on steps to correct deferral conditions as indicated in the weatherization program operations manual.

### **Combustion Gases**

- Proper venting to the outside for combustion appliances, including gas dryers is required. Correction of venting is allowed when testing indicates a problem. Combustion safety testing is required when combustion appliances are present. Inspect venting of combustion appliances and confirm adequate clearances. Test naturally drafting appliances for draft and spillage under worst case conditions before and after air tightening. Inspect cooking burners for operability and flame quality. Provide the client with combustion safety and hazards information including the importance of using exhaust ventilation when cooking and the importance of keeping burners clean to limit the production of CO.

### **Drainage – gutters, downspouts, extensions, flashings, sump pumps, landscape, etc.**

- Major drainage issues are beyond the scope of the Weatherization Assistance Program. Homes with conditions that may create a serious health concern that require more than incidental repair should be deferred. Also see mold and moisture guidance below. Inform the client of observed conditions. Discuss with the client the importance of cleaning and maintaining drainage systems and proper landscape design.

### **Electrical, other than Knob-and-Tube Wiring**

- Minor electrical repairs are allowed where health and safety of the occupant are at risk. Upgrades and repairs are allowed when necessary to perform specific weatherization measures. Voltage drop and voltage detection testing are allowed. Provide information to the client on overloading circuits and other electrical safety/risks. Work must meet and comply with local electrical codes.

### **Electrical, Knob-and-Tube Wiring**

- Minor upgrades and repairs necessary for weatherization measures and where the health and safety of the occupant is at risk are allowed. Must provide sufficient over-current protection prior to insulating over knob-and-tube wiring. Inspect for the presence and condition of knob-and-tube wiring. Check for alterations that may create an electrical hazard. Voltage drop and voltage detection testing are allowed. Provide information to the client on over-current protection, overloading circuits and other electrical safety/risks. Work must meet and comply with local electrical codes.

### **Fire Hazards**

- Correction of fire hazards is allowed when necessary to safely perform weatherization. Check for fire hazards in the home during the audit and while performing weatherization. Inform the client of observed hazards.

### **Formaldehyde, Volatile Organic Compounds (VOCs), and other Air Pollutants**

- Removal of pollutants is allowed and is required if they pose a risk to workers. If pollutants pose a risk to workers and removal cannot be performed or is not allowed by the client, the unit must be deferred. Inform the client of the observed conditions and associated risks. Provide the client with written materials on safety and proper disposal of household pollutants.

### **Injury Prevention of Occupants and Weatherization Workers – Measures such as repairing stairs and replacing handrails**

- Workers must take all reasonable precautions against performing work on homes that will subject workers or occupants to health and safety risks. Minor repairs and installation may be conducted only when necessary to effectively weatherize the home; otherwise these measures are not allowed. Inform the client of observed hazards and associated risks.

### **Lead Based Paint**

- Follow EPA's Lead; Renovation, Repair and Painting Program (RRP). In addition to RRP, Weatherization requires all weatherization crews working in pre-1978 housing to be trained in Lead Safe Weatherization (LSW). Deferral is required when the extent and condition of lead-based paint in the house would potentially create further health and safety hazards. Testing is allowed. Job site set up and cleaning verification is required by a Certified Renovator. All weatherization crews working on pre-1978 homes must receive LSW training and be accompanied by an EPA Certified Renovator. State Inspectors must be Certified Renovators and receive LSW training.

### **Mold and Moisture**

- Limited water damage repairs that can be addressed by weatherization workers and corrections of moisture and mold creating conditions are allowed when necessary in order to weatherize the home and to ensure the long term stability and durability of the measures. Where severe mold and moisture issues cannot be addressed, deferral is required. Notify the client and provide them with a disclaimer on mold and moisture awareness.

### **Occupant Preexisting or Potential Health Conditions**

- When a person's health may be at risk and/or the work activities could constitute a health or safety hazard, the occupant at risk will be required to take appropriate action based on the severity of risk. Failure or the inability to take appropriate actions must result in deferral. The occupant shall reveal known or suspected health concerns during the initial application for weatherization. The auditor shall screen occupants again during the audit. Provide the client with information of any known risks. Provide worker contact information so that the client can inform them of any issues.

### **Occupational Safety and health Administration (OSHA) and Crew Safety**

- OSHA 10 hour training is required for all workers. OSHA 30 hour training is required for crew leaders. Workers must follow OSHA standards and Material Safety Data Sheets (MSDS) and take precautions to ensure the health and safety of themselves and other workers. MSDS must be posted where workers may be exposed to hazardous materials. Crews are to document utilizing safe work practices.

### **Pests**

- Pest removal is allowed only where infestation would prevent weatherization. Infestation of pests may be cause for deferral where it cannot be reasonable removed or poses health and safety concerns for workers. Screening of windows and points of access is allowed to prevent intrusion. Inform the client of the observed condition and associated risks.

## **Radon**

- Whenever site conditions permit, exposed dirt must be covered with a vapor barrier except for mobile homes. In homes where radon may be present, precautions should be taken to reduce the likelihood of making radon issues worse.

## **Refrigerant**

- Refrigerant must be reclaimed per the Clean Air Act 1990, section 608, as amended by 40 CFR82, 5/14/93

## **Smoke, Carbon Monoxide Detectors and Fire Extinguishers**

- Installation of smoke/CO detectors is allowed where detectors are not present or are inoperable. Install to comply with local codes. Replacement of operable/CO detectors is not an allowable cost. Providing fire extinguishers is allowed only when solid fuel is present. Provide the client with verbal and written information on the use of smoke/CO detectors.

## **Solid Fuel Heating (Wood Stoves, etc.)**

- Maintenance, repair and replacement of primary indoor heating units is allowed where occupant health and safety is a concern. Maintenance and repairs of secondary heating units is allowed. Inspection of the chimney and flue and combustion appliance zone (CAZ) depressurization testing is required.

## **Space Heaters, Stand Alone Electric**

- Repair, replacement or installation of stand-alone space heaters is not allowed. Removal is recommended. Check the circuitry to ensure adequate power supply for existing space heaters. Inform the client of the hazards and collect a signed waiver if removal is not allowed.

## **Space Heaters, Unvented Combustion**

- Removal of unvented combustion space heaters is required, except as secondary heat where the unit conforms to ANSI Z21.11.2. Units that do not comply must be removed prior to weatherization but may remain until a replacement heating system is in place. Testing for air-free carbon monoxide (CO testing) is allowed. Inform the client of the dangers of unvented space heaters – CO, moisture, NO<sub>2</sub>, CO can be dangerous even if the CO alarm doesn't sound

## **Space Heaters, Vented Combustion**

- Should be treated as furnaces. Draft and CO testing should be tested consistent with furnaces.

## **Spray Polyurethane Foam (SPF)**

- Use EPA recommendations (available online at [http://www.epa.gov/dfe/pubs/projects/spf/spray\\_polyurethane\\_foam.html](http://www.epa.gov/dfe/pubs/projects/spf/spray_polyurethane_foam.html)) when working within the conditioned space or when SPF fumes become evident within the conditioned space. When working outside the building envelope, isolate the area where foam will be applied, take precautions so that fumes will not transfer to inside conditioned space, and exhaust fumes outside the home. Check for penetrations in the building envelope. Provide notification to the client of plans to use two-part foam and the precautions that may be necessary.

## **Ventilation**

- 2010 (or most current) ASHRAE 62.2 is required to be met to the fullest extent possible, when performing weatherization activity. Implementing ASHRAE 62.2 is not required where acceptable indoor air quality already exists as defined by ASHRAE 62.2. Existing fans and blower systems should be updated if not adequate. Provide the client with information and function, use and

maintenance of ventilation system and components. Include disclaimer that ASHRAE 62.2 does not account for high polluting sources or guarantee indoor air quality. ASHRAE 62.2 training is required for HVAC installers and includes training in proper sizing, evaluation of existing and new systems, depressurization tightness, limits, critical air zones, etc.

### **Window and Door Replacement, Window Guards**

- Replacement, repair or installation is not an allowable health and safety cost but may be allowed as an incidental repair or an efficiency measure if cost justified. Report Window or door replacements for State Historic Review compliance. Provide information to the client on lead risks.

## **CHAPTER 8**

### **WAP Service Delivery Standards**

SWC shall be responsible for completing all weatherization work in compliance with the standards and specifications listed below. These standards apply to both SWC and any and all companies working for the SWC.

The SWC must also adhere to all specifications for materials as identified in 10CFR Part 440. Where a conflict may arise, the specifications set forth in 10CFR Part 440, Appendix A will prevail.

The State WAP office recognizes that it is impossible to address all situations that may arise in the field when a dwelling is being estimated or when work is being performed. As always, professional results depend on good judgment being used at the work site.

#### **A. Energy Audit Protocol**

The BPI certified Home Energy Analyst determines the pre-weatherization conditions of the home and identifies what weatherization measures are appropriate. Note that currently a BPI certified Home Energy Analyst is required to conduct the audit as well as a different BPI certified Home Energy Analyst to perform the quality control inspection. It should be stated that DOE core competencies are also required and that future DOE updates and or certifications may be required. The State will adopt any regulations or certifications as required by the DOE. Work orders must be prepared for the weatherization crews/contractors and the HVAC contractor as necessary. The Auditor must complete a HEAT Audit for every home.

1. Conduct a walk-through visual estimation of the home to determine the weatherization services needed in accordance with WAP priorities;
2. Test for gas leakage at connections of natural-gas and propane piping systems. Specify repair for leaks and replacement for hazardous or damaged flexible gas connectors. Inspect for oil leakage in oil-fired heating and water-heating systems. Inspect combustion venting systems for damage, leaks, disconnections, and other safety hazards. Conduct combustion-appliance-zone (CAZ) pressure tests, carbon monoxide (CO) tests, and spillage tests on all combustion appliances venting into atmospheric chimneys, including fan-assisted gas appliances, as follows:
  - Monitor for ambient CO during combustion testing, and discontinue testing if ambient CO level exceeds 35 parts per million (ppm).
  - Measure baseline pressure in the CAZ with reference to worst case scenario.
  - Activate exhaust fans, clothes dryer, and air handler to maximize negative pressure in the CAZ. **Don't activate whole-house fans designed for night cooling.**
  - Open or close interior doors as needed to maximize negative pressure in the CAZ.
  - Measure the change in CAZ pressure WRT outdoors that is induced by exhaust fan, air handler, and door position.
  - Operate open-combustion appliances, beginning with the smallest input, and test for spillage at the draft diverter, barometric draft control, or burner inlet (fan assisted appliances). If a combustion appliance spills for longer than 1 minute, specify measures to mitigate spillage.
  - Test for CO in undiluted flue gases of combustion appliances. If CO in undiluted flue gases is more than 100 ppm as measured or 200 ppm air-free measurement, specify

service to reduce CO to below these levels (unless your CO measurement is within manufacturers specifications).

- Conduct a CO test on all sealed-combustion and power-vented appliances (without atmospheric chimneys).
  - When cost-effective and feasible, recommend replacing open-combustion equipment with high-efficiency, sealed-combustion equipment or power-vented equipment (or non-combustion equipment such as a heat pump).
  - CO testing is required for newly installed sealed-combustion and power-vented appliances. Test gas ovens for CO. If ovens produce more than 200 ppm of CO (or 400 ppm air-free measurement) in undiluted flue gases tested in the oven vent, specify service or replacement.
  - Specify local (spot) ventilation for kitchens and bathrooms according to ASHRAE Standard 62.2 – 2007, Section 5. There are two options for complying with the kitchen and bathroom requirements. Both bathroom and kitchen requirements may be met by dedicated exhaust fans and/or a central ventilation system.
  - Specify smoke alarms for homes that don't already have them installed. Specify CO monitors/alarms in homes with combustion appliances or attached garages, one per floor level.
  - Specify final combustion testing at project completion, to ensure compliance.
3. Whenever possible perform a blower door test with the dwelling in its worst case scenario. The CFM50, needed to meet this requirement without mechanical ventilation, is referred to in this standard as Minimum Ventilation Requirement or MVR (previously called "Building Airflow Standard" BAS).
- Follow these steps to determine the MVR and determine ventilation needs:  
Determine the number of occupants by choosing whichever is larger:  
(a) Actual number of occupants  
(b) Number of bedrooms plus one  
Find the zone from the map shown below.

Whenever changes to the building shell requiring a blower door test are part of the work scope, a Building Airflow Standard must be calculated for the home according to the air exchange requirements provided by ASHRAE standard 62.2. Actual occupancy of the building must be used when calculating the Building Airflow Standard. An example of the calculation is shown below:

## **Minimum Building Airflow Standard Example Calculation**

### **BUILDING DATA**

Living Space Area = 1500 sqft

Basement Area = 700 sqft

# of Occupants = 4

# of Stories Above Grade= 2

Location = Albany, NY

### **Step 1: Calculate the Ventilation Required for the Building**

$AIRFLOW(b) = 0.35 \times \text{volume} / 60$

$\text{volume} = 8 \times (1500 + 700) = 17600 \text{ cubic feet}$

$AIRFLOW(b) = 0.35 \times 17600 / 60 = 102 \text{ cfm}$

### **Step 2: Calculate the Ventilation Required for the People**

$AIRFLOW(p) = 15 \times \text{occupants}$

$$\text{AIRFLOW}(p) = 15 \times 4 = 60 \text{ cfm}$$

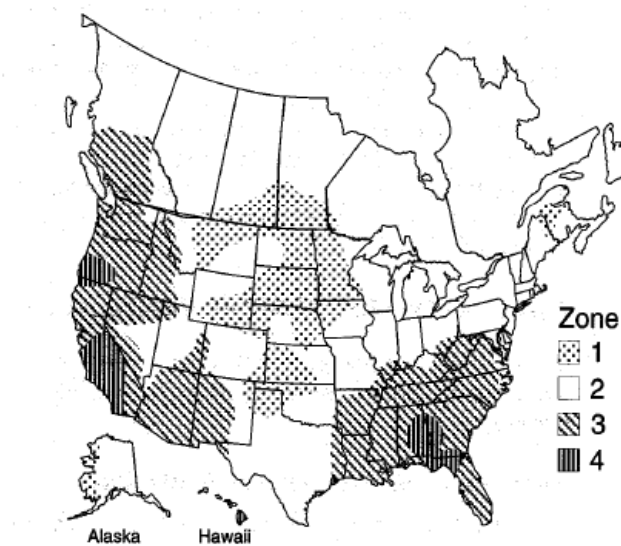
**Step 3: Using the Higher Airflow Requirement, Convert to CFM50**

$$\text{MINIMUM\_CFM50} = \text{AIRFLOW} \times N$$

*Where N is the LBL conversion factor (see chart)*

$$\text{MINIMUM\_CFM50} = 102 \times 15.4 = 1570 \text{ CFM50}$$

### Converting Between CFM 50 and Natural Airflow



### LBL “N” Factors

Zone	N Factor
1	14-17
2	17-20
3	20-23
4	23-26

# of Stories	Height Correction Factor
1	1
1.5	0.89
2	0.81
2.5	0.76
3	0.72

To determine the correct multiplier, identify the N-factor for your region and multiply the result by the appropriate height correction factor  

$$\text{CFM50/N} = \text{Natural Airflow (cfm)}$$

### Height-Corrected N-Factors for New York

Number of Stories	N-Factor
1	19
1.5	16.8
2	15.4
2.5	14.4
3	13.7

4. A blower door test must be completed before and after installation of any of the following measures:
  - Attic insulation, in order to quantify improvements to the air barrier between the attic and the living space.
  - Enclosed cavity insulation representing an area greater than 15% of the total building shell area.
  - Air sealing.
  - Sealing of ductwork located outside the building envelope or significant duct modifications within the building envelope.

Fires in woodstoves and/or fireplaces must be fully extinguished prior to performing a blower door test. Pressurization tests are not recommended under these conditions due to the fire safety risks.

5. Inspect windows and note the need for glass replacement or major window or door repair work such as rotten sills or broken sashes;
6. Inspect the sidewalls for insulation levels;
7. Inspect attic insulation levels. If existing insulation is less than R-19 (6-inch fiberglass or 7-inch cellulose), prepare a work order to bring attic insulation up to R-39 provided the addition of insulation passes the cost effectiveness tests required by WAP. In brick row houses, inspect attic for applicability of dense packed insulation;
8. Inspect floor insulation in crawl spaces and in mobile homes. There should be at least R-19 existing when the area is considered unconditioned. The installation of floor insulation will be allowed when the measure passes the cost effectiveness tests;
9. Inspect hot water heaters and pipes. Insulation must be installed when accessible. Low-flow aerators and showerheads must be installed where practical;
10. Perform a visual inspection of furnace and record data on make, model and output/input rating. Determine whether a maintenance contract or warranty on the heating unit exists before requiring contractor service;
11. Perform a fossil fuel furnace (including vented and unvented space heaters) efficiency test and flue gas analysis to determine whether to replace, clean and tune, or retrofit. Determine general condition; The HVAC Contractor should inspect heat exchanger condition; test for signs of back drafting; inspect flue connections; and note all potential fire and safety hazards.

Service options determined based on policy;

12. Inspect air and return distribution system for leakage and integrity. Inspect for visual duct leakage and insulation of duct runs through unheated areas. Determine airflow at all supply registers and inspect return air vents for blockage. Inspect filters and specify replacements by the furnace contractor;
13. Perform an audit of the lighting use in the dwelling and determine the potential for retrofit of fixtures using acceptable lighting replacements;
14. Discuss with the homeowner what may be done to the house and provide customer education and counseling for conserving energy;
15. Note any variances on the audit document to ensure adequate documentation of non-compliance. Such non-compliance will be reviewed on a case-by-case basis by the State WAP, which reserves the right to withhold payment for non-priority services performed without prior approval and clear documentation of circumstances.

## **B. Blower Door Use**

A blower door test must be performed on every dwelling unit served under the WAP. This form of diagnostics will assist in detecting hidden sources of air infiltration while providing a means of monitoring the success of the efforts. The SWC is responsible for providing the required labor and materials for conducting blower door diagnostics in accordance with BPI standards, and performing necessary infiltration reduction measures. Air infiltration reduction will be considered as Priority #1 and must be performed on every dwelling unit receiving services.

1. Explain the purpose of the blower door to the customer and him/her about cold rooms, drafts, etc.
2. Conduct a walking tour of the unit to ensure proper conditions conducive to blower door testing;
3. Inspect for back drafting of combustion equipment by following the protocol established by the WAP.
4. Set up blower door and develop pre-service measurements (CFM at 50 pascals);
5. Conduct a walk-through of the house, identifying air leakage areas;
6. Perform air sealing according to standards set forth by the WAP using appropriate heat waste reduction materials;
7. Perform post-test and record final CFM readings. Provide a printout of pre and post-tests for the customer file and record the materials and labor required to achieve the CFM reduction; and

The SWC establishes the pre-service CFM level by performing a blower door test and measuring the cubic feet per minute airflow at 50 pascals. The SWC must also establish the Minimum Ventilation Rate (MVR) for the dwelling and an acceptable air infiltration reduction threshold (Target) and document established MVR using charts and calculations provided for their crews or subcontractors. The crews / subcontractors are expected to continue performance of air infiltration reduction protocols until the blower door readings are within the MVR/Target CFM range. Reimbursement of expenses for air infiltration reduction will occur at a fixed rate of \$55 per 100 CFM reduced.

1. Estimator will take a pre-service blower door test to establish CFM airflow at 50 pascals. This reading is recorded on the HEAT Audit and the Work Order.
2. Estimator will note all obvious air leakage points and record instructions to abate on the HEAT

Audit and Work Order forms.

3. Estimator will calculate the house volume in cubic feet (length x width x height).
4. Estimator will determine the allowable charges based on the anticipated CFM reduction. State will reimburse up to \$55 per 100 CFM reduced.
5. If the SWC intends to perform air sealing below the MVR, a detailed list of existing conditions that warrant this action must be evidenced on the WAP Audit Form and prior written approval from DHCD is required.
6. If the pre-service blower door test reveals that the CFM level falls within the target range, the SWC may elect not to perform air infiltration reduction protocols for the dwelling.

### **C. Minimum Ventilation Rate**

Minimum acceptable levels for air changes are based on 2010 ASHRAE 62.2 standards.

In performing air infiltration reduction, SWC crews/subcontractors **must avoid** air sealing that will reduce cubic feet per minute (CFM) airflow below acceptable levels for good air quality. This air flow point, commonly referred to as the Minimum Ventilation Rate (MVR), must take into consideration the health of the occupants, combustion air requirements for heating systems, and potential moisture problems.

### **ASHRAE (American Society of Heating, Refrigeration & Air Conditioning Engineers) 62.2 Procedures**

#### **ASHRAE 62.2**

ASHRAE Standard 62.2-2007, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, is the national ventilation standard of design for all homes and multi-family buildings up to three (3) stories

#### ➤ Training

- a. Evaluating existing and new systems
  1. Whole building ventilation will have to be installed in most existing homes for determining proper sizing
  2. The ASHRAE 62.2 fan sizing is based on total square footage of the home and number of bedrooms.
- b. Meeting depressurization & tightness limits
  1. BTL no longer viable for existing homes
  2. Dwelling tightening limits now based only on
    - a) Cost effectiveness
    - b) Combustion safety
- c. Checking critical air zones
  1. Local exhaust fans must be installed in bathrooms and kitchens
  2. Adjoining garage(s) are sufficiently air sealed from the living space to prevent migration of contaminants
  3. Whole building fan providing IAQ ventilation air should operate automatically without requiring occupant intervention
    - a) IF the fan providing the IAQ ventilation air is set to cycle on & off, the entire on/off cycle must be completed within three (3) hours

#### ➤ Testing

- a. Perform ASHRAE 62.2 evaluation

1. Unit must be single family or multi-family residential building with no more than three (3) stories
2. Ventilation system should be
  - a) Exhaust
  - b) supply
  - c) or combination of the two (balanced)
- b. Test fan flow
  1. Fans should be of correct size per the following formula:  

$$(total\ sq.\ footage\ of\ home/100) + ((number\ of\ bedrooms + 1) \times 7.5\ cfm)$$
  2. Local exhaust fans must be installed in bathrooms and kitchens
  3. Control of fans must provide consistent percentage on-times
  4. All clothes driers are vented to exterior
  5. Ventilation air comes directly from outdoors
- c. Follow up testing
  1. Delivered ventilation rate must meet following formula:

$$Fan\ CFM = (0.01A + 7.5 \times (Occupancy)) - Infiltration\ credit^{\#}$$

Where

- Fan CFM = Measured CFM delivered by designated whole building ventilation system
- A = Area in the living space in square feet
- Occupancy = # of bedrooms + 1 OR actual occupants, whichever is greater
- Infiltration credit =  $0.5 \times ((CFM\ 50/N-Factor) - 2A/100)$

*# Infiltration credit used only if estimated CFM natural is greater than twice the home area/100.*

#### ➤ Client education

- a. Provide client with following information on ventilation system
  1. function
  2. use
  3. maintenance
- b. Disclose that ASHRAE 62.2 does NOT
  1. account for high polluting sources
  2. guarantee indoor air quality

## **D. General Heat Waste Measures**

The SWC is required to provide the labor and materials necessary to perform general heat waste measures and minor carpentry work in addition to blower door directed air infiltration reduction measures. The quality standards for general heat waste measures are fully explained in the Weatherization Installation Standards.

1. The SWC must use the blower door when performing infiltration measures.
2. Weather-strip all windows, doors, and access openings between heated and unheated areas. Where prime windows have storm windows, and are already weather-stripped or otherwise tight, weather-stripping will be left to the agency's discretion.

3. Install thresholds and/or door sweeps; re-glaze broken windows (including primes and existing storm windows and doors in good repair). Glass replacement in any door or panel 18" horizontally from the door opening must be with safety glass or Plexiglas.
4. Caulk/seal doorframes, window frames, fixed windows, building corners, along chimneys, areas where different materials meet (i.e., masonry to frame, foundation to siding), service entries, and other areas where infiltration and moisture can be stopped. Interior and exterior caulking/sealing will be directed through use of the blower door. Material selection should best suit the situation.
5. Reasonable repair of existing windows/storm windows and exterior doors can be performed when the corrective action is deemed cost-effective and if it meets the measure's SIR.
6. Installation of box sill insulation.
7. Installation of sill sealer between top surface of masonry foundation and sill plate to eliminate air infiltration. Sill sealer can be wedged into gap between the masonry foundations and sill plate if this problem exists.
8. Insulation of hot air ducts and pipes in unconditioned spaces.
9. Close and seal unused, unheated areas.
10. Close off unused fireplaces (should be flagged and easily removable).
11. Minor repairs required to support the weatherization activity. This includes measures such as those outlined in the definition of "Incidental Repairs" located in Chapter 2, Definition of Terms.
12. Seal and/or prime any wood, glazing and other materials that the manufacturer recommends being sealed if exposed to weather.
13. To ensure that customers receive only the highest quality materials, the following list of weatherization material specifications is provided:
  - a. Weather-stripping – Any commercially available product that has a life expectancy greater than two years.
  - b. Caulking - WAP requires usage of quality products with 10 years minimum life expectancy. This can include clear or white silicon and non-expanding foams.
  - c. Glazing Putty - WAP requires usage of quality products with 10 years minimum life expectancy.
  - d. Storm Windows - DOE allows for several different types of storm windows and sets standards for them (such as wood, plastic, etc). WAP has determined that aluminum storm windows are the most durable, most cost effective and least difficult to install.

## **E. Water Heater System Treatment**

The SWC is required to provide the labor and materials necessary to improve the efficiency and reduce the energy use associated with producing, distributing and using domestic hot water in the household.

1. Insulate water heaters with the insulation kits commercially available using mineral wool and/or fiberglass batt (HH-I-521E and ASTM C665-78).
  - a. Electric: Install R-11 or better insulation kits in heated and unheated areas
  - b. Gas: Install R-11 or better insulation kits commercially available only as per manufacturer's specifications in heated and unheated areas
  - c. In all cases, location of the controls should be marked.
  - d. Water heaters without pressure relief valves should not be insulated.
  - e. Specifications for newer water heaters must be reviewed to determine the allowance of installing an insulation jacket;

2. At least six (6) feet (or to the first elbow) of the cold water pipe and all of the accessible hot water pipe must be insulated with a commercially available pipe insulation and in accordance with manufacturer's specifications.
3. Low flow restriction devices will be placed on the kitchen and bathroom faucets and on the showers. Flow rates should be the lowest practicable level (shower - 2.5 gpm, faucets - 1.5 gpm). Low flow aerators will not be installed on kitchen faucets if an automatic dishwasher is present and in working order.
4. Gas water heaters will be tested to ensure their safety and cleaned by licensed contractors if necessary.
5. Temperature settings on both gas and electric water heaters will be reduced to the lowest practicable level.

## **F. Furnace Retrofit and Replacement**

Furnace retrofit, known as furnace efficiency modifications, is designed to increase the combustion efficiency of heating systems. Furnace retrofit will rank high in the standard weatherization package's list of priorities, depending on the condition of the furnace and the existence of insulation in attic and floor areas. Furnace replacement is provided for those homes where the furnace is operating at less than acceptable efficiency levels and the life expectancy of the system is less than the time necessary to recover retrofit investments.

WAP requires the subcontracting of these services to licensed furnace contractors. This does not preclude the hiring of qualified staff to perform assessment and quality control. The following terms have been defined to provide SWCs with a common vocabulary:

<b>Air - Primary:</b>	Air that is induced to the combustion chamber by the burner to mix with oil or gas at the point of ignition.
<b>Air - Secondary:</b>	Air that enters the combustion chamber after the ignition of atomized oil.
<b>Baffle:</b>	A device to slow the passage of flue gases through the furnace enabling more heat to be extracted from the gases.
<b>Carbon Dioxide (CO<sub>2</sub>):</b>	A gas created by the fuel's burning process used during testing as a measure of complete combustion.
<b>Carbon Monoxide:</b>	An odorless, poisonous gas formed as a by-product of incomplete fuel combustion.
<b>Combustion Chamber:</b>	The chamber where combustion takes place. It is in base of furnace or boiler; surrounds the burner assembly; and radiates heat back into flame to aid in combustion.
<b>Combustion Efficiency Analysis:</b>	Using a measured amount of flue gas and determining a furnace's efficiency by testing it for CO <sub>2</sub> , Oxygen, stack temperature and smoke.
<b>Draft:</b>	A flow of air that is "pulled" in a precise manner necessary for the removal of products of combustion. Draft readings should be taken over the fire. However, when using an electronic analyzer, test should be taken through

the flue to avoid risk of burning out the thermocouple in the probe.

<b>Heat Anticipator:</b>	A small resistance heating element that causes the thermostat to shut off burner, circulator, etc., before desired room temperature has been reached. This prevents overheating of the room.
<b>Nozzle:</b>	A device used to atomize oil for combustion.
<b>Orifice:</b>	A measured opening where natural gas and propane pass through at point of combustion.
<b>Oxygen (O):</b>	An odorless, tasteless, colorless gas that must be present if combustion is to occur.
<b>Oil Pump:</b>	A pump used to lift oil from tank or build up atomizing pressure.
<b>Plenum:</b>	The chamber above the furnace from which the warm air is emitted to the distribution system.
<b>Smoke:</b>	The visible bi-product of the incomplete combustion of fuel.
<b>Stack Temperature:</b>	The temperature of flue gas and bi-products to be taken at a specific location, not to exceed nine inches from the plenum.
<b>Steady State Efficiency (SSE):</b>	The measure of the performance of the furnace while it is operating.
<b>Thermostat:</b>	A device used to control desired room temperature.

Furnace retrofit services are classified into two categories: 1) clean/tune and 2) burner replacement. The two key indicators as to which level of service will be provided is the Steady State Efficiency (SSE) test results and the visual inspection of the heating system. Measuring the SSE requires that the heating plant be in operation long enough so that a steady state mode (unchanging temperature) has been established. The system must therefore be thoroughly warmed up for approximately five minutes before testing can occur. SSEs are typically between 65 and 85 percent.

1. Clean/Tune for Oil & Kerosene Fired Furnaces  
Regardless of the SSE test results, a clean/tune may be provided to all homes where oil or kerosene is used by the central heating system. At a minimum, the following will be performed:
  - a. Conduct combustion efficiency and smoke tests before work begins and record results on appropriate forms.
  - b. Clean and vacuum system.
  - c. Adjust air/fuel ratio for maximum efficiency.
  - d. Replace burner nozzle.
  - e. Replace air filter or install air filter if missing (preference for permanent washable filters to be used)
  - f. Seal any area where excess air is evident, including cracks between sections, gaskets, fire door, etc. (gaskets are recommended as opposed to cementing)
  - g. Inspect fuel pump and fuel line.
  - h. Replace fuel filter if present or install if missing.

- i. Inspect all electrical connections and safety devices.
- j. Inspect chimney and smoke pipes.
- k. Inspect flue vent damper and draft controls. Make necessary adjustments to ensure proper draft.
- l. Lubricate all motors and moving parts where required.
- m. Clean house thermostat and test for operating accuracy.
- n. Perform combustion efficiency and smoke tests after work is completed and record results on appropriate forms.
- p. Inspect water heater, including flue, and perform back draft tests where appropriate.

## 2. Clean/Tune for Gas and Propane Fired Furnaces

Regardless of the SSE test results, a clean/tune will be provided to all homes where natural gas or propane is used by the central heating system. At a minimum, the following will be performed:

- a. Perform combustion efficiency and smoke tests before work begins and record results.
- b. Clean and vacuum system.
- c. Inspect main gas valve, regulator and other control valve to ensure operational safety.
- e. Adjust air/fuel ratio for maximum efficiency.
- f. Replace air filter if present or install if missing.
- g. Inspect all electrical connections and safety devices.
- h. Inspect chimney and smoke pipes including water heater pipes if present.
- i. Inspect flue vent damper and draft controls. Make necessary adjustments to ensure proper draft.
- k. Lubricate all motors and moving parts where required.
- l. Clean house thermostat and test for operating accuracy.
- m. Perform combustion efficiency and smoke tests after work is completed and record results on appropriate forms.
- n. Inspect water heater, including flue, and perform back draft tests where appropriate.

## 3. Burner Replacement

If the SSE of the central heating system is at or below 71% and/or the system appears to have a life expectancy of five (5) years or less, a burner replacement should be recommended. The replacement of the old burner assembly with a "flame retention" burner will allow the SSE to reach 85% and above. Since there may be some furnaces that will not reach a percentage greater than 85% SSE, the WAP requires that furnace service contractors achieve the highest practical SSE based on the age and condition of the unit while maintaining all appropriate safety margins. While most retrofits will occur on oil-fired furnaces, there are some gas burner assemblies which may qualify for retrofit services. At a minimum, the services to be provided include:

- a. Perform combustion efficiency and smoke tests before work begins and record results on appropriate forms.
- b. Install flame retention burner with shutter damper.
- c. Clean and vacuum system.
- d. Adjust air/fuel ratio for maximum efficiency.
- e. Replace burner nozzle (orifice) and downsize if practicable.
- f. Replace air filter if present or install if missing.
- g. Seal any area where excess air is evident, including cracks between sections, gaskets, fire door, etc. (gaskets are recommended over cementing)
- h. Inspect fuel pump (adjust pressure to between 100 and 125 psi) and fuel line.
- i. Replace fuel filter if present or install if missing.
- j. Inspect all electrical connections and safety devices and repair where appropriate in a safe and

- reasonable manner in compliance the National Electric Code (NEC).
- k. Line existing chamber or install a new chamber when necessary.
  - l. Inspect chimney and smoke pipes.
  - m. Inspect flue vent damper and draft controls. Make necessary adjustments or replace to ensure proper draft.
  - n. Lubricate all motors and moving parts where required.
  - o. Clean thermostat and test for operating accuracy.
  - p. Remove old equipment and clean work area(s).
  - q. Perform combustion efficiency and smoke tests after work is completed and record results on appropriate forms. Ranges of acceptable test results are as follows:
    - 1. Net Stack Temperature: Not less than 300 degrees and no greater than what is reasonably attainable due to design,
    - 2. C02: Not more than 50 parts per million per flue gas sample.  
**Documented exceptions are permitted based on age and lack of maintenance on some furnaces provided the furnace is left in best possible condition**
    - 3. Oxygen: 7% to 3%
    - 4. Smoke: 0 to 1
    - 5. Draft: .01 to .02 (over flame)
    - 6. Excess Air: 25% to 50%

#### 4. Furnace Replacement

Central heating systems can be replaced with energy efficient equipment with an Energy Star rating when it is determined that the cost of replacement meets the savings to investment ratio tests established through the auditing protocol. Provide documentation, including a Manual J, and get prior approval from DHCD prior to commencing work. To assure the maximum amount of energy is conserved, the SWC must consider the Annual Fuel Utilization Efficiency (AFUE) ratings of replacement equipment. The results of the equipment test are published by the Gas Appliance Manufacturers Association (GAMA). Unlike steady-state conditions, this rating is based on average usage, including on and off cycling, as outlined in the standardized Department of Energy test procedures. The higher the AFUE rating, the more efficient is the replacement heating unit. Replacement equipment must meet or exceed the following AFUE:

AFUE of 78 or better for oil/kerosene furnaces or boilers  
AFUE of 80 or better for natural gas/propane furnaces or boilers

If the central heating system is found to be operating in an unsafe manner and it is determined that maintenance repairs and/or furnace retrofit of the unit will not provide satisfactory results, the SWC may consider replacement as part of incidental repair (capital intensive funding levels do not apply).

Fuel conversions will not be allowed. If the existing system is oil, kerosene or gas, it will be replaced with a highest practical efficiency furnace of the same fuel type. Contractors participating in the replacement program must prepare heat load calculations based on the Manual J for Residential Heating. The proper completion of this document is designed to enhance the contractor's ability to accurately select the proper size replacement unit. At a minimum, the services to be provided include:

- a. Perform combustion efficiency and smoke tests where applicable before work begins and record results on appropriate forms.
- b. Perform Manual J and other support documents to document the criteria for replacement and

- sizing options.
- c. Install the new furnace. Replacement unit size and design will be determined by housing stock; the former heating system and square footage of the home (refer to Manual J).
- d. Adjust air/fuel ratio for maximum efficiency.
- e. Properly install air filter when necessary.
- f. Seal any area where excess air is evident, including cracks between sections, gaskets, fire door, etc. (gaskets are recommended rather than cementing).
- g. Inspect fuel pump and fuel line.
- h. Replace fuel filter if present or install when missing.
- i. Inspect all electrical connections and safety devices.
- j. Inspect chimney and smoke pipes.
- k. Inspect flue vent damper and draft controls. Make necessary adjustments or replace to ensure proper draft.
- l. Lubricate all motors and moving parts where required.
- m. Clean thermostat and test for operating accuracy.
- n. Seal distribution system and ensure adequate return air is present.
- o. Remove old equipment and clean work area(s).
- p. Perform combustion efficiency and smoke tests after work is completed and record results on appropriate forms.

## **F. Floor, Ceiling, Sill Plate, Sill Box, Knee Wall, Duct and Wall Insulation**

The SWC is required to provide the labor and materials necessary to install insulation products to reduce heat loss between conditioned and unconditioned space and to improve the energy efficiency of the dwelling unit. WAP regulations require that all cellulose insulation must be purchased from approved wholesalers/vendors. All materials must be installed in accordance WAP standards, including applicable codes, regulations, manufacturers' specifications and recommendations and in accordance with generally accepted industry standards.

1. Floor insulation should be installed when practicable in the joist spaces over unheated crawl spaces or unheated basements. Areas where furnaces are located are considered heated and will require perimeter insulation.
  - a. Install an R-19 friction-fit faced insulation batt between floor joists butting snugly against box sill. Add support for insulation between joists with bowed wire supports, or other effective material. If a faced batt is used, the vapor barrier must be against the floor (faced toward heated area).
  - b. Ventilation of unheated foundation areas to minimum free ventilation area one square foot per 1500 square feet. All unheated foundation areas must be vented if the floor is insulated. In order to prevent pipes from freezing, insulation should be installed over the pipes so the pipes remain between the insulation and the floor. There are methods of wrapping insulation around pipes (the application of electric tape and insulation, etc.) when it is not possible to insulate over the pipes. Heat ducts should also be between insulation and floors where possible. If they are below insulation, they should be insulated.
  - c. Perimeter insulation may be used in heated basements and crawl spaces as an alternative to floor insulation. Install an R-19 friction-fit insulation batt along all foundation walls between the heated and unheated areas.  
Batts should extend from bottom of floor to ground. Interior use of perimeter insulation may not be an acceptable alternative where basement areas are finished, where small children use these areas, or where moisture cannot be effectively controlled. Ventilation would not normally be used when the perimeter is being insulated.

- d. Whether floor or perimeter insulation is installed, all dirt floors must be covered with a four (4) mill polyethylene film (ASTM C755-73) held in place with rocks, boards, earth or sand. Be sure to have at least a four (4) inch overlap and fold over. Ground cover should also extend up foundation walls approximately four (4) inches and sealed around foundation.

**NOTE:** In some cases, a combination of these methods may be used. In such cases the access door between heated and unheated areas should be insulated (R-19 minimum) and weather-stripped.

- e. Treat the access to the unconditioned space using insulation and appropriate air infiltration reduction materials.
2. Install approved insulation materials in ceiling (attic) areas. In all cases, the attic access must be treated with insulation materials equivalent to the surrounding area and install appropriate general heat waste materials to restrict the flow of air between the conditioned and unconditioned space.
- a. The SWC staff must determine the presence of roof leaks by visual inspection and discussion with the owner. Leaks must be eliminated before insulation can take place. Such repairs must be within the current limits for incidental repairs.
  - b. A visual inspection of the ceiling must be performed to ensure that it will support weight of insulation. It also should be noted that roofs will be subject to an increased snow load due to the new insulation. Therefore, the condition of the roof structure should be examined.
  - c. A visual inspection of the existing wiring must occur. The customer should be questioned as to frequency of blowing fuses, tripping of circuit breakers, heating of switch plates or outlet covers and flickering of lights.
  - d. Barriers must be provided around recessed light fixtures, junction boxes, chimneys and flues, and door bell transformers.
  - e. When a sound chimney with a flue liner exists, an unfaced batt of insulation should be placed as barrier around the chimney to prevent cellulose insulation from falling into the cavity and making contact with the chimney. If the condition of the chimney is in question or if no flue liner exists, the chimney should be repaired and a barrier should be provided allowing a minimum 3 inch dead air space around the chimney.

**NOTE:** The National Electric Code (1978) requires that no insulation be placed within three inches of "recessed light fixtures enclosures, wiring compartments, or ballast and shall not be installed above the fixture as to entrap heat and prevent the free circulation of air". In the case of wiring that is cracked, frayed, deteriorated, or otherwise in question, do not add insulation to this area until the wiring is inspected and repaired by a qualified licensed person.

- f. Dryers, kitchen and bath fan vents that terminate in the attic should be extended to the outside. Any vent duct passing through the unheated attic should be insulated.
- g. Heat ducts and pipes passing through unheated attic areas should be wrapped with un-faced batts of insulation or duct/pipe wrap.
- h. Install fiberglass, mineral wool or cellulose insulation in designated attic areas to achieve a level of R-39 or greater.

- i. Install blown fiberglass, mineral wool or cellulose insulation under designated floored attic areas to meet R-39 or the highest practical level possible;
  - j. Install high-density cellulose insulation in cantilevers and attics of row homes when the roof and upper living space have common joist.  
Installation must be achieved to the highest practical R-value based on prevailing conditions work must be performed by trained personnel.  
Insulation applied in this manner will also reduce the infiltration rate significantly. After installation, a blower door test must be performed to determine if further air sealing is required;
  - k. Install fiberglass, mineral wool or cellulose insulation in designated cavities above home additions to achieve a level of R-39 or greater; and
  - l. Perform air sealing prior to installing the insulation materials to restrict the flow of excess air into the attic cavity from the living space. This includes the sealing of plumbing and chimney chase ways, electrical penetrations and other access ways.
1. Perform air sealing and insulation in the sill plate/box area to restrict the flow of air from entering the home between the foundation and wall structure and from rising inside the wall cavity. These measures will be installed regardless of whether floor insulation is required in the dwelling.
    - a. Perform required air sealing techniques in the sill plate area to restrict infiltration between the building's foundation and wall materials; and
    - b. Encase insulation batts in polyethylene and friction fit in floor joist areas at the sill plate to restrict the flow of air.
  4. Install insulation in attic cavities created by knee wall construction when deemed cost-effective. The result of installation must create insulation coverage on all surfaces between conditioned and unconditioned space.
    - a. Insulate the lower ceiling area behind the knee wall with fiberglass, mineral wool or cellulose to achieve a level of R-39 or better when open joists exist or to the highest practical level when the area is floored;
    - b. Insulate the knee wall cavity with fiberglass batt to achieve a level of R-19 or better.
    - c. Treat the access to the knee wall area with insulation equivalent to the surrounding wall area. Appropriate general heat waste materials must be installed to restrict any air infiltration;
    - d. Seal the roof joist cavity at the knee wall and prepare for blown or batt insulation to achieve the highest practical level of insulation in each of the attic joist cavities; and
    - e. Insulate the collar beam area to a level of R-39 or greater using fiberglass, mineral wool or cellulose materials. Access to this area must be insulated to a level equivalent to the surrounding area and appropriate general heat materials must be installed to restrict air movement between the conditioned and unconditioned space.
  5. Install duct insulation on all hot air ducts which pass through unconditioned space in the home in accordance with IRC/IECC codes. Inspect the entire hot air distribution system and perform repairs and sealing where required.

- a. Insulate with materials with an R-value of 6 or better. All insulation joints must be taped or sealed to prevent separation or heat loss; and (Ideal process is to use mastic sealant)
  - b. Perform system balancing, when required by the WAP, using a "duct blasting" protocol or other acceptable means for measuring system distribution efficiency. Repairs or retrofit of both the heat distribution and cold air return systems will be performed using the appropriate materials.
6. Install blown insulation into exterior wall cavities using a "dense pack" protocol as prescribed by the WAP when such a measure is deemed cost-effective. Determine the integrity of the exterior wall surfaces and certify that the addition of dense pack insulation will not adversely affect the physical structure of the dwelling unit.
- a. Interview the customer to ascertain the heating/cooling costs of the unit well as to determine if any special problems exist in the structure;
  - b. Conduct a walk-through of the dwelling unit to identify key junctions and bypasses, wall/ceiling junctures, wall/floor junctures, offset floors ceilings, cantilevered floors, overhangs and garages under living and make the necessary adjustments in the installation methodology to properly address the construction differentials;
  - c. Install dense-packed insulation in the wall cavities to achieve a settled density of R-3.5 per inch or 3.5 pounds per cubic foot;
  - d. Perform a blower door test after completion of the insulation protocol to determine if further air sealing is required;
  - e. Install rigid insulation with a minimum R-value of 5 per inch below grade 7.2 per inch above grade, when required; and
  - f. Re-test the dwelling unit and basement for negative pressure produced by exhaust fans or the central heating/cooling system which could lead to spillage and back drafting of the combustion appliances.

## **H. Ventilation**

Proper and adequate ventilation must be installed to ensure the effectiveness of the insulation and guard against deterioration caused by moisture accumulation. 2010 ASHRAE 62.2 is required to be met to the fullest extent possible, when performing weatherization activity. Implementing ASHRAE 62.2 is not required where acceptable indoor air quality already exists as defined by ASHRAE 62.2. Existing fans and blower systems should be updated if not adequate. FHA standards require one square foot of ventilation (free air) for each 150 square feet of insulated area. This ratio applies to ceilings without proper barrier. When vapor barriers, having a transmission value not exceeding one perm, are properly placed, or where at least 50% of venting is provided by soffit vents and at least 50% of the venting is located as high sources of ventilation (minimum of 3 feet above soffit vents), FHA allows a ratio of 1/300.

- 1. Soffit venting should be installed wherever practicable. In homes that have soffit vents either in-place or to be installed, some form of barrier must be installed to assure that insulation does not block the vent; thus allowing for a free flow of air.
- 2. Install ventilation in attic and floor areas when it is determined that the installation of these materials will enhance the effectiveness of insulation materials or reduce moisture problems identified during the audit protocol. All ventilation must be installed and sealed in a manner consistent with industry standards and conform to surrounding material composites to avoid moisture infiltration. All ventilation work must be warranted for a period of not less than two years. Areas in the dwelling where ventilation can be installed include:

- a. Attic and roof areas between the insulated envelope and the outdoors.  
This ventilation can include: roof vents (mushroom caps); gable vents (louwer and/or adjustable); soffit vents (louwer and 1" to 3" round louwer); window vent conversions; and roof ridge vents;
- b. Sidewall areas to ventilate insulated wall cavities or knee walls. This ventilation can include: gable vents (louwer and/or adjustable); hole vents (1" to 3" round louwer vents); and soffit vents; and
- c. Floor areas to ventilate insulated cavities or reduce moisture problems.  
This ventilation can include: basement wall louwer vents (thermal, mechanical and passive); and hole vents (1" to 3" round louwer vents).

## **I. Attic Hatch Installation**

The installation of an attic access may be required in order to determine insulation levels in ceiling/attic areas or to gain access for installation of insulation materials. This opening must be large enough to allow an average sized individual to pass through and access the attic area.

1. Locate the attic hatch in an inconspicuous area of the upper floor ceiling (e.g., closet, bedroom corner).
2. Locate the access between the joist cavities and cut the opening between two (2) joist spaces. Construct in accordance with current code, 22"x30" with 30" of vertical clearance above. After clearing the materials from the opening, a trim frame must be constructed with a sufficient reveal to accommodate a hatch cover of plywood or drywall. The trim corners must be cut at 45 degrees to create a professional corner molding. The trim must be finished with white primer and/or paint. Nail holes or screws must be countersunk and finished with cover materials. The trim must be caulked to the surrounding ceiling materials to prevent air infiltration.
3. Fit the access plate of plywood or drywall into the opening in a manner that allows easy removal but does not allow free air flow between the conditioned and unconditioned space. The access plate (or the reveal of the trim casing) must be insulated with an acceptable weather-strip material to avoid air infiltration between the conditioned and unconditioned space. Insulation materials equivalent to the surrounding insulated areas must be permanently affixed to the back of the access panel. The panel must be painted or primed.
4. Install a "build-up" box, when required, around the attic access to allow for the depth of the access materials (e.g., pull down stairs to the attic area). The same standards for installation apply. All sides and top must equal the surrounding R-value.

## **J. Storm Windows**

Aluminum storm windows will be installed on prime windows that open into the heated areas of the dwelling unit when the NEAT Audit or comparable auditing technique deems the installation cost effective. Storm windows can only be installed whenever single glazed primary windows exist. Triple glazing of windows is not an allowable expenditure. All primary windows and existing storms will be glazed and panes will be replaced if broken. Windows above the second story, windows which swing out and other prime windows where exterior storm windows cannot be reasonably installed may be fitted with insider storms or other approved means of treatment. Alternate treatments must be documented in the customer's file.

1. All materials must be installed in accordance with manufacturers' specifications and recommendations and in accordance with generally accepted industry standards.

2. Accurate measuring of all window openings covered in any work order must be performed by the auditor or the subcontractor. Each manufacturer alters the measuring requirements slightly.
3. Materials to be provided must be available in white, brown or mill finish.
4. All materials must be purchased from vendors approved and identified on the Approved Vendors List.

#### **K. Windows and Door Replacement**

Replacement, repair, or installation is not an allowable health and safety cost but may be allowed as an incidental repair or an efficiency measure if cost justified. The SWC is required to provide the labor and materials to install replacement primary windows and doors in cases where repair is not cost-effective or the fenestration does not exist but should for energy conservation and health and safety reasons. All materials must be installed in accordance with manufacturers' specifications and recommendations and in accordance with generally accepted industry standards.

1. The auditor or the subcontractor is responsible for the accurate measuring of all window openings covered in any work order.
2. Materials to be provided must be available in white, brown or mill finish.
3. All materials must be purchased from vendors approved and identified on the Approved Vendor List.
4. The SWC must install double glazed windows with vinyl or aluminum match the existing interior and exterior surrounding walls.
5. Replacement prime doors must be solid core construction, exterior grade, finished with one (1) prime coat and one (1) finish coat of exterior grade white paint or two (2) coats of polyurethane. Doors may be solid and equipped with a vision device or with 1 center lite and must be secured with existing or new jamb, hardware, locks, etc. The door shall include weather-stripping, sweep, threshold and caulking. Homes having historical significance may require finishes to be done in white. Also, custom work may be requested in order to maintain the integrity of the opening.
6. The SWC will be responsible for removal of the old window sash, doors and frames and clean-up of the interior and exterior area.

#### **L. National Historic Preservation Act**

The procedures below outline the process for those activities which may have a possible effect on historic properties and ensures that DHCD Weatherization is in compliance with the Programmatic Agreement.

Review Process:

1. If the proposed work is limited to activities listed in the attached list, PA Exhibit I, no additional review is necessary and the work can proceed.
2. If the proposed work is not limited to activities listed in Exhibit I, the LWA\Auditor must provide the following project information to the DHCD historical architect for review.

NO WORK MAY BEGIN UNTIL THE PROJECT HAS BEEN REVIEWED AND APPROVED IN WRITING BY THE DHCD HISTORICAL ARCHITECT.

A new feature has been added to the Hancock system in the Energy Audit screen. When a window or door measure has been added the Hancock system will move you to the State Approval Screen where the program will stop the job from being processed further.

Attach the following information to this measure in Hancock:

- a. Digital photographs showing general views of all sides of the exterior of the building.
- b. Digital photographs showing the features that will be affected by the proposed work (e.g. the window to be repaired for example).
- c. List the work to be undertaken, please be specific (for example; replace broken glazing in first floor living room window, 2'6"x3'4" double hung wood window, wood frame to remain).

The DHCD historical architect will monitor the State Approval Screen in Hancock and review all units submitted.

Once approved or denied the DHCD Historical Architect will notify you by email the results of their review and release the project from Hancock.

### **M. Domestic Lighting Retrofit**

The SWC is required to provide the labor and materials to retrofit residential lighting in accordance to the policies set forth by the WAP.

1. Identify the most used fixtures in the dwelling based on information obtained during the customer interview and completion of the Lighting Retrofit portion of the Weatherization Audit
2. Examine the existing light fixture to be replaced and determine the wattage/type of bulb (compact fluorescent, quad, etc.) to be used. Generally, a lamp must be on for 2 hours or more per day for a compact fluorescent to be cost effective. Most homes will require four (4) lighting replacements.
3. Obtain the permission of the occupant to replace specific incandescent bulbs with compact fluorescent tubes or other applicable bulbs when it is deemed practical and cost effective.

### **N. Refrigerator and or Freezer Replacement**

Under EmPower DHCD will replace refrigerators and freezers under the appliance replacement measure. The SWC will replace the refrigerator and freezers with similar size and type of units; an inefficient existing 18 cu ft, side by side, water in the door, black refrigerator/freezer combination will be replaced with an energy star 18 cu ft. side by side, white refrigerator/freezer with no water in the door, additionally if the family also has an inefficient chest freezer it will also be replaced with a similar sized chest freezer if it meets the SIR of 1.0 or greater.

The new replacement refrigerators and freezers will be energy star rated with automatic defrost. It is still to be determined, based on the requirements of working with a specific vendor, but currently we are assuming that the replacement units will be selected from a group of standard units including: top mount refrigerator/freezer, side x side refrigerator/freezer, upright freezers and chest freezers in 14, 16, 18, and 20 cu. ft.. The units shall comply with UL-250 and with energy efficiency standards established in the National Appliance Energy Conservation Act of 1987. New replacement units may **not** have through-the-door ice or water service since this feature increases energy use. If a customer currently has a refrigerator with an icemaker and has the water line installed needed to accommodate this feature, we will ensure the replacement unit has an icemaker.

To facilitate the customer's decision, the auditor should show the customer a picture of the replacement refrigerator and explain the differences between the customer's current refrigerator and the replacement refrigerator, including cubic foot differences between the existing and new unit's freezer and fresh food compartment space.

The refrigerator replacement must result in a savings-to-investment ratio (SIR) of 1.0 or greater.

As calculated using an ***Economic life time = 15 years***. DHCD believes 15 years is an appropriate economic life time to use in life-cycle cost calculations. Refrigerators cannot be replaced based solely on age. Although older refrigerators were built to less efficient standards, other factors such as size and manual defrost impact energy use of existing refrigerators. Leveraged funds can be used to bring the SIR of a marginally cost-effective measure to 1.0 or greater. All units in an eligible multi-unit project may receive a replacement refrigerator if the SIR is 1.0 or greater.

There will be two main methods to determine if the refrigerator is eligible for replacement. The first involves metering the electricity usage during the client interview/energy audit. The other method utilizes a database of estimated annual electricity usage of most refrigerators manufactured in the past 25 years that is based on data published by the Association of Home Appliance Manufacturers (AHAM). A subset of this data is publicly available from several sources. Refrigerators assessed using data base evaluation must match the model number.

In HEAT you can enter the results of refrigerator metering. The selection criteria targets models for replacement that measured more than 250 watts when running, usage of more than 0.150 kWh per hour (1,310 kWh annually) measured over an approximate two hour period and a percent running time of greater than 70%. We will use the refrigerator replacement analysis tool, developed by D&R International, Ltd., for DOE, which helps Weatherization providers determine the cost-effectiveness of replacing existing refrigerators in eligible households using the same calculation methods and assumptions programmed into NEAT. It is available for the PC or PDAs using Palm OS.

You can access the tool from the following website <http://www.waptac.org/Refrigerator-Guide/Analysis-Tool.aspx>

Alternately, Energy use of existing refrigerator can also be determined using HEAT or through AHAM (The Association of Home Appliance Manufacturers) or other certified database of refrigerator energy use. The AHAM database used separately or as incorporated into NEAT/MHEA may be used to estimate the annual energy use of existing refrigerator. The Home Energy on-line database ([www.homeenergy.org/consumerinfo/refrigeration/index.php](http://www.homeenergy.org/consumerinfo/refrigeration/index.php)). The tool stores data entered by the user on the annual energy use and installed cost of new, replacement refrigerators. The user can also edit the electricity price, economic life, and discount rate used to calculate the savings-to-investment ratio of the proposed refrigerator replacement.

DHCD shall require the SWC's to live meter A minimum of 20% of the units to determine actual watt-hour consumption, and record the results in the client file. If the database of estimated annual electricity usage method is used then the estimated energy savings data must be recorded in the client files. Units that cannot be located in the AHAM or other refrigerator databases may make up all or most of the 20% requirement. The minimum metering duration required to obtain results accurate enough to make a reliable replacement decision has been set to ***Meter at least 2 hours***.

The auditor must tell the customer that a refrigerator vendor will be making all the arrangements for delivery of the new refrigerator.

- When taking measurements, you **must** measure existing access doorways to assure proper fit of old and new units.
- Changes to the structure of the home may prohibit removal of the old unit. Measurements should include the size of the old unit (to guarantee old unit can be removed).
- Advise customers that the refrigerator delivery company must have a free and clear path to remove the old unit and to deliver the replacement unit.
- Advise customers not to remove contents of units being replaced until shortly (1/2 hour) before the estimated delivery time for the new unit.

The auditor should have customer sign a form that he/she has seen pictures of the new unit and accepts the new unit and he/she agrees to turn in the old units

The existing refrigerator must be removed from the house so that it does not find its way back onto the electric grid. The old refrigerator must be ***Disposed in an environmentally responsible manner***. All refrigerators replaced must be properly disposed of according to the environmental standards in the Clean Air Act of 1990, section 608, as amended by Final Rule 40 CFR 82, May 14, 1993.

Proper disposal will be ***incorporated into vendor contracts*** — Disposal at de-manufacturing facilities or specific disposal requirements will be written into the contract with the vendor supplying the new refrigerator. A Certificate of Disposal from the scrap yard/recycler shall be available for all appliances removed from service and a copy placed in the client/job file.

## **O. Water Heater Replacement**

The Weatherization Program will mostly replace existing tank-type water heaters with new tank water heaters. Water heaters may be replaced when energy savings justify the replacement cost. Water heater replacement must result in a savings-to-investment ratio (SIR) of 1.1 or greater.

The economic lifetime used in the SIR calculation should not exceed the manufacturer's guarantee. Water heater replacements are generally not cost effective unless savings accrue for at least 10 years. Therefore, agencies will purchase new replacement water heaters with at least a 10-year guarantee.

The new replacement water heaters will primarily be for electric water heaters, although water heaters using other fuels may also be allowable weatherization measures using non EmPOWER funding. However they must get prior approval and have back-up data indicating how it meets the SIR.

New water heaters may be installed in units when called for as a health and safety measure or based on SIR as determined by NEAT/MHEA. EmPOWER MD Funds will not be used to convert to an electric water heater from another fuel source except in cases in the BGE service territory where replacement is warranted due to inefficiency or significant health and safety considerations. Water heaters shall be installed by a licensed contractor in accordance with the requirements of the governing code. The permit (where required) shall be obtained from the responsible code enforcement authority with copy or documentation maintained in the client file. Once the unit has been installed, the contractor must place the information on the appliance, in plain view, certifying that the system has been properly installed in accordance with governing code requirements. The information shall indicate the date of installation and the name and phone number of the mechanical contractor

If the existing electric water heater must be replaced, the new unit should have an energy factor of at least 0.88 and be equipped with at least three inches of foam insulation.

**The following information will need to be entered into HEAT to estimate the energy savings to determine whether a potential water heater can be replaced:**

Nameplate information: Energy Factor (EF), Recovery Efficiency (RE, for fossil-fired water heaters), tank size, manufacturer, model number, and serial number.

Occupants: Use the number of people in the house on a typical day or the number of bedrooms + 1.

Appliances: Dishwasher or clothes washer

Usage: Determine the typical frequency of activities that use lots of hot water

As listed under **Required General Heat Waste Measures** in this section, wrapping the water heater and insulating the water lines must be done on every dwelling (site-built and manufactured) receiving weatherization services. Any water line leaks must be fixed before insulating.

Electric water heater should be evaluated and these situations may warrant a replacement:

- a. The water heater unit has visible rust and/or is leaking water.
- b. Temperature cannot be adjusted down (temperature exceeds 120 degrees indicating possible calcium build-up on elements – more likely when water source is a well).

- c. Water does not get up to 120 degrees.
- d. Unit never turns off (electrical problem or calcium build-up).
- e. Unit does not work.

Note: The state office will consider installation of tankless water heating units. A cost comparison and literature about the unit must be submitted to the Department for review and approval before installation occurs.

The following guidelines apply when a water heater is replaced:

- a. Factory insulation of R-11.5 minimum.
- b. Include a drip pan.
- c. Same size as existing unit.
- d. Pressure Relief Valve Plumbing:
  - i. Into drip pan or container.
  - ii. Through adjacent exterior wall (less than 5 ft.) if concrete floor
  - iii. Through floor if crawlspace

If the water heater is not replaced, the following guidelines are recommended:

- a. If no drip-pan exists, provide container next to water heater (minimum one gallon), overflow line to extend 2" below top of container.
- b. Plumb through adjacent exterior wall (less than 5ft.).
- c. Plumb into an existing drain line.

## **P. Room Air Conditioner Replacement**

If replacement is determined to be the appropriate step to take, replace the unit with an Energy Star unit, cross reference with the ACEEE "Top Rated Energy Efficient Appliances" list to be sure the new unit is the most energy efficient one available. A central air conditioning unit with the Energy Star label is at least 20% more efficient than standard equipment. A window or wall unit with an Energy Star label is at least 10% more efficient than standard equipment. Remember, only those with use of at least 2,000 kWh qualify for replacement of units. The customer must have at least 2,500 kWh of AC use to get two new units and at least 3,000 kWh of AC use to get three units.

Replace the central air conditioner or heat pump if it is SEER 8 or less. Replace it with SEER 13 or higher. If you want to replace a central AC system or heat pump, you must get prior approval.

Replace the window unit if it is EER 6 or lower as labeled, calculated or metered, with a new Energy Star rated unit. EER (energy efficiency rating) is a measure of the amount of cooling the unit can do (in BTU/hr) divided by the amount of electricity it needs (in watts).

A sizing calculation must be done to determine the size of the new air conditioner. See sizing guidelines in this manual.

\*Preston's Guide ([www.prestonguide.com](http://www.prestonguide.com)) is a publication that lists all central air conditioner and heat pump makes and models. If the EER or SEER is not on the unit, it can be looked up in this publication and the efficiency determined. Or, check the Air Conditioning and Refrigeration Institute's website, [www.ari.org/directories](http://www.ari.org/directories), and go to PrimeNet.

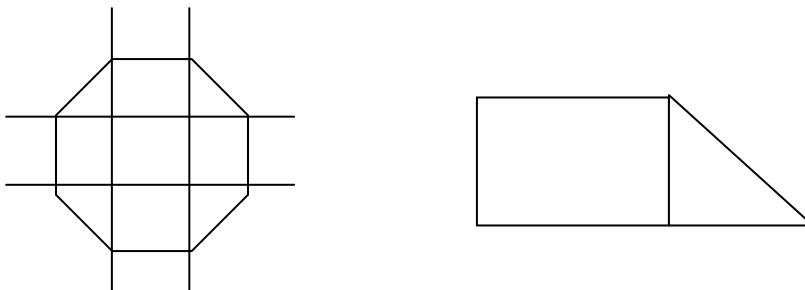
## **Properly Sizing Room Air Conditioners**

Many people buy an air conditioner that is too large, thinking it will provide better cooling. However, an oversized air conditioner is actually less effective and wastes energy at the same time. Air conditioners remove both

heat and humidity from the air. If the unit is too large, it will cool the room quickly, but only remove some of the humidity. This leaves the room with a damp, clammy feeling. A properly sized unit will remove humidity effectively as it cools.

To figure out which size unit is best for your cooling needs:

1. Determine the square footage of the area to be cooled using the following formulas:
  - a. For square and rectangular rooms, multiply the length of the area by its width.
  - b. For a triangular area, multiply the length of the area by the width and divide by 2.
2. Most rooms can be further divided into these basics shapes to determine the square footage.



If the shape of your room is other than square or rectangular, ask DHCD to help you determine the square footage.

3. Using the square footage and the chart below, determine the correct cooling capacity. Cooling capacity is measured in British thermal units (BTUs) per hour.

<b>Area to be Cooled (square feet)</b>	<b>Capacity Needed (BTUs per hour)</b>
100 to 150	5,000
150 to 250	6,000
250 to 300	7,000
300 to 350	8,000
350 to 400	9,000
400 to 450	10,000
500 to 550	12,000
550 to 700	14,000
700 to 1,000	18,000
1,000 to 1,200	21,000
1,200 to 1,400	23,000
1,400 to 1,500	24,000
1,500 to 2,000	30,000
2,000 to 2,500	34,000

4. Make any adjustments for the following circumstances:
  - a. If the room is heavily shaded, reduce capacity by 10 percent.
  - b. If the room is very sunny, increase capacity by 10 percent.
  - c. If more than two people regularly occupy the room, add 600 BTUs for each additional person.
  - d. If the unit is used in a kitchen, increase capacity by 4,000 BTUs.
  - e. Consider where you install the unit. If you are mounting an air conditioner near the corner of a room, look for a unit that can send the airflow in the right direction.

## **Q. Incidental Repairs**

Incidental repairs may be performed in conjunction with any of the priorities previously listed. The total cost of these repairs (labor and materials) must be included in the cost of the package of measures installed and must meet the Savings to Investment ratio (SIR) of the average job cost. Incidental repair costs must be included as part of the total unit cost when determining the maximum and average expenditure per dwelling unit.

An incidental repair is “those repairs necessary for the effective performance or preservation of weatherization materials.” These repairs are usually different than those measures identified in the grantee’s Health and Safety Plan. Some examples are: door locks; door jams; minor roof repair that promotes the installation of insulation/venting; minor furnace repair; and furnace cleaning/tuning.

## **R. Mobile Home Weatherization**

The SWC is required to provide the labor and materials necessary to weatherize eligible mobile homes. The standards for service delivery will be similar to those referenced above. All materials must be installed in accordance with manufacturers' specifications and recommendations and in accordance with generally accepted industry standards.

1. Perform blower door-directed air infiltration reduction in accordance with the standards and procedures referenced above. All health and safety protocols must be strictly practiced during the air sealing.
2. Where replacement is necessary, install replacement prime windows with either single strength or thermal glass and install interior storms and trim as specified in the work order. The materials provided must be available in white, brown or mill finish and must be purchased from vendors designated on the Approved Vendor List. Windows must have vinyl or aluminum frames, various finishes and appropriate capping and materials to trim the window to match the existing interior and exterior surroundings.
3. Where replacement is necessary, replace front entrance door with a combination door (prime with storm) or similar product. The door shall include weather-stripping, sweep, threshold and caulking. Rear prime doors will be replaced with suitable mobile home materials for the opening. Materials to be provided must be available in white, brown or mill finish and be purchased from vendors identified on the Approved Vendor List. Appropriate capping and materials must be installed to the door trim so that it matches existing interior and exterior surrounding walls. Custom work may be required in order to maintain the integrity of the mobile home opening and secure the installation.
4. Install mobile home skirting (including drip edge, venting and access panel (average mobile home size 12 x 70, 30" high). This material must be vinyl composite and colored to match the home when possible. When the height of the panel exceeds 30", bracing may be required.
5. Perform incidental repairs as may be required to enhance the integrity of the mobile home shell. These repairs could include:
  - a. Re-riveting of aluminum siding; and
  - b. Replacing of belly board.
6. Insulate the belly-board area using a dense pack technique similar to sidewall insulation. This procedure must be performed by trained crews capable of recognizing and treating all special constraints of this procedure prior to installation. Air sealing of the air duct system and the integrity

of the belly-board system must be performed prior to installing insulation materials.

7. Perform treatment of the water heating system in accordance with the standards set forth above.
8. Insulate air ducts and water pipes in unheated areas in accordance with the standards set forth above.

## **CHAPTER 9**

### **Quality Control**

The SWC is to provide quality control inspections for 100% of all residential dwelling units receiving WAP services. These inspections will assist the WAP in meeting the following objectives:

- To provide services in a manner that meets the highest level of professionalism and to comply with standards established by the Department, the federal government, and the industry; and
- To provide services in a timely fashion and with the highest level of resource accountability possible in accordance with the scope of work provided.

#### **A. Qualifications of Inspection Companies and Individuals**

The individual(s) who perform inspections must possess the following minimum qualifications:

1. Must have current BPI Home Energy Analyst certification
2. Have at least three years recent experience in providing residential property inspection services or three years of closely related experience;
3. Certification in the use of diagnostic equipment (i.e., blower door, combustion efficiency test equipment) from the Weatherization Training Center, any other recognized WAP training center or the equipment manufacturer;
4. Provide written and photographic documentation to validate Quality Control findings, positive and negative

#### **B. Description of Inspection Services**

The following are mandatory components of the inspection process:

1. Perform a blower door test to verify results of air infiltration reduction achieved by the SWC;
2. Perform a combustion efficiency test of the central heating system (fossil fuels) to verify results of furnace service contractor;
3. Perform a walk-through inspection of the property to verify the installation of materials as recorded on the Work Order and Invoice documents provided by the SWC;
4. Document resource accountability issues and major violations of WAP protocol on the Quality Control Inspection Form;
5. Document customer comments and obtain customer signature on the appropriate forms which verifying the work performed; and
6. Complete the Quality Control Inspection Form in HEAT in the prescribed manner and forward the information electronically in HES to the Department and to the SWC.

#### **C. Procedures for Inspection Service**

##### **1. Inspection Submission and Sampling**

If a third party independent contractor is hired to perform the quality inspections on 100% of completed units, WAP staff will continue to perform inspections. State WAP inspectors are required to review not less than 10% of each batch provided to the Department by the SWC. This percentage will be reviewed unless an inspector finds a pattern of missing or inferior work in their random sampling. A higher percentage or all dwelling units may be inspected.

- a. WAP staff will inspect only those units that have been ‘officially’ received, logged, and reviewed by the Department prior to the scheduled visit.

## 2. Inspection Procedures

The following procedures are provided as a guide for performing the quality control inspection services:

- a. Inspector schedules an appointment with the customer to visit the dwelling and perform the inspection;
- b. Inspector arrives at dwelling equipped to conduct all necessary tests and services at the appointed time;
- c. Inspector performs blower door test, combustion efficiency test, and walk-through inspection as appropriate and required;
- d. Inspector records comments and quality assessment on the quality control form. Inspector also records variances in resource accountability between work order and/or invoice and inspection findings;
- e. Signature of customer is obtained (signature must be a resident adult); and
- f. Inspector distributes the inspection form in the manner prescribed by the Department.

**NOTE:** Each dwelling unit must be inspected and the inspection report submitted to the State office and the SWC within ten calendar days after being notified of its completion by the SWC.

## 3. Inspection Scoring

For each project, the SWC will perform an inspection on 100% of the homes weatherized. Note that the Quality Control (QC) Inspector shall be BPI certified and shall not be the same person that conducted the original audit. These inspections will verify proper installation of installed measures. Inspections occur after the job is completed and prior to invoicing.

DHCD will provide a quality assurance inspection on at least 10% of the homes weatherized. The SWC QC inspector should accompany the DHCD QA inspector on the visits. The time frame for any corrective actions needed following the QA inspection will vary depending on the severity of the problem. SWC members will receive, in writing, corrections needed and time frame for completion. For QA inspections, results are scored into the following five sub-categories:

### **Fail - Urgent Priority Response Needed**

The QC inspector is not to leave the installation site until the issue is addressed. With respect to any safety issues, corrective actions must be implemented as necessary.

#### **Conditions in this category may include:**

- a. Contractor was aware of a problem and left home in unsafe condition. Unsafe conditions might include improper installation of insulation that could result in fire or structural damage to the home.
- b. Other health and safety related problems that may pose an immediate risk to the building occupants

**Poor – Additional work required**

The contractor will be given instructions for making repairs and a timeline for completing those repairs. Payment will be withheld until the work has been repaired. Additional training and technical assistance will be required on subsequent work. A unit will fail

**Conditions in this category may include:**

- a. Other health and safety related problems
- b. Measures included in the scope of work as costs to the Participant but not installed
- c. If major WAP services were missed (e.g., no attic insulation installed and could have been, no furnace work performed etc.) and the file does not indicate why the service was omitted; and
- d. Failing to conform to program administrative procedures (failing to obtain pre-approvals, change order approvals, etc.)
- e. If materials reported as installed cannot be found;
- f. Quality of installation issues observed for measures installed

**Fair - Passes Program Standards with Technical Assistance**

The work performed passed the inspection, but the QA inspector had to provide technical assistance to correct deficiencies before project was complete.

**Good - Passes Program Standards**

The work performed passed the In Home Energy Evaluation Standards.

**Excellent – High Quality Work**

The work performed was of high quality and noteworthy. Provide photo documentation as a best practice

**D. Customer “No-Show” Policy**

It is anticipated that a small percentage of units will not be inspected due to a variety of extenuating circumstances including:

- Customer moves/dies & property is vacant or occupied by a second party; or
- Customer is unavailable after several attempts to re-enter and inspect.

The following are the procedures for reporting "no show" properties:

1. SWC completes the WAP services and forwards the Work Order and Dwelling Unit Report/Invoice (DUR) to the assigned inspector. SWC will convey landlord contact information for rental properties. Inspector will be responsible for contacting landlords/property managers to seek assistance in completing the inspection process, as required.
2. Inspector must make several attempts to enter the property, including:
  - a. Contacting the customer by telephone to schedule appointment;
  - b. Forwarding of a letter setting a time and date for the inspection;
  - c. Conducting an unscheduled site visit to the dwelling; and
  - d. In the case of rental properties, performing the previous steps with the landlord as well as the customer.
3. Inspector returns the Work Order and DUR to the SWC with the signed Customer Contact Form. No Quality Control Inspection Form is required.

4. In the event that an agency exceeds their allowable percentage for "no show" properties and still retains production that cannot be inspected, the State WAP staff should be immediately notified for advice on how to seek reimbursement. Decisions regarding these matters will occur on a case by case basis. The Department reserves the right to remedy these situations in whatever fashion it deems is in the best interest of the State.

## **CHAPTER 10**

### **Management Information**

#### **A. Targeting of Eligible Population**

Prioritization is used to identify and provide WAP services to eligible households. Households are targeted for weatherization assistance to the elderly and households with persons with disabilities. Listed below are the specific criteria used in prioritizing eligible dwelling units to be served:

1. Units occupied by homeowners;
2. Units defined as "high residential energy user" customers by those utility companies offering to provide supplemental funding for the weatherization effort and whose residential energy expenditures exceed the median level of residential expenditures for all low-income households in the State;
3. Units in which utility consumption exceeds 135% of the utility systems average as indicated by the dwelling units' respective utility company and whose household income is 50% of poverty or below;
4. Units in which utility service has been re-connected due to the household participating in the Maryland Public Service Commission Utility Service Protection Plan and whose household income is 50% of poverty or below;
5. Units with children five (5) years of age or younger;
6. Units with "households with a high energy burden" whose residential energy burden (residential expenditures divided by the annual income of that household) exceeds the median level of energy burden for all low-income households in the State.

Non-targeted dwelling units are those with households whose income does not exceed 200% of poverty and who are not referenced above. Service to these units will be allowed on a first come, first serve basis after all target units have been prioritized.

1. Applications and referrals must be sorted upon receipt into target or non-target groups.
2. Once applications are sorted into Target and Non-Target groups, they must be certified following policies and procedures outlined in Section V. The priority applications must be considered first for certification and service delivery. It is possible to have priority and non-priority applicants receiving services concurrently. Services to clients should not cease at any point during the program year due to a lack of priority applicants.

#### **B. Re-Weatherization**

Homes previously weatherized may be re-weatherized (re-visited) after 5 years from the documented date of weatherization. Re-visits are limited to installation of measures not already installed during the initial weatherization effort. The SWC must follow all current guidelines regarding the audit protocol and HEAT modeling. Only services included on the measures list or which pass the savings to investment tests may be installed. Limits of expenditures are the same as those of new weatherization projects. In no case may the amount spent for re-weatherization exceed the SWC average assistance limit.

### **C. Limits of Service**

An average cost per dwelling unit is established annually for services provided. Renters are excluded from receiving furnace replacements unless the household is deemed ineligible to receive assistance from other SFH programs or the assistance cannot be provided in a timely fashion.

### **D. Unoccupied Dwelling Units**

An unoccupied dwelling unit may become eligible for weatherization if the SWC can certify that the dwelling:

1. Is not being or will not be rehabilitated through a federal, state, or locally funded program; and
2. Will be occupied by an eligible family unit within 180 days from the date of completion.

The SWC must verify that the unit is occupied by an eligible family unit within the 180 day time period. A customer file must be developed in accordance with Section V and XIII.

### **E. Program Oversight and Monitoring**

DHCD may conduct comprehensive monitoring of each SWC at least once a year. The comprehensive monitoring may include review of client files, proof of insurance, certifications and financial records, as well as inspection of at least 10 percent of the completed units or units in the process of being weatherized. If inspection reveals quality control or other problems, DHCD will increase the number of units monitored and frequency of inspection until all issues are resolved. A detailed review of SWC records and inspections will be maintained by DHCD and be available at the request of Department of Energy monitors.

### **F. Removal Standards**

SWC may be removed from the program in accordance with the criteria presented here. Contractors removed from the program will no longer be eligible to receive work or access to the approved applicant list.

#### **1. Removal Criteria**

DHCD may remove any participating SWC from the program for a minimum of ninety (90) calendar days when DHCD determines that the SWC has caused or allowed any of the following to occur:

- a. Misrepresentation: Providing materially false information to DHCD, a EmPOWER partnering companies, or a Participant, including misrepresentation of employment by DHCD
- b. Liens: Failure to prevent a supplier or a subcontractor from placing a lien against a Participant's property because the supplier or subcontractor is unpaid for equipment, material, or labor for an installation under the In Home Energy Evaluation.
- c. Unacceptable Behavior: Engaging in behavior of the following sorts against a customer, any DHCD or EmPOWER utility companies personnel, or any person cooperating in any investigation, dispute resolution attempt, or other activity involving a program dispute:
  - Intimidation
  - Harassment
  - Retaliation
  - Bribery
  - Attempted Bribery

Note: This list is illustrative and not exhaustive. These are examples only and not a complete list.

- d. Negative Promotion: Making any advertisement or promotion negatively impacting the MD WAP Program, DHCD, or EmPOWER partnering companies
- e. Repeated Failures: Two consecutive failures to have the same measure pass inspection for reasons enumerated in a prior inspection
- f. Untimely Corrections: Failure to remedy after notification, without charge,
- g. Any failure to meet or satisfy DHCD Installation Standards,
- h. Any damage to a Participant's property resulting from an installation under the MD WAP Program
- i. Failure to Comply with:
  - A provision of law
  - A DHCD rule, regulation, guideline, or instruction generally applicable to all SWC of the same class
  - A DHCD policy, standard, or criterion

## **2. Removal Process**

DHCD will have responsibility for removing SWC from the MD WAP. EmPOWER partnering companies participating in the MD WAP may choose to incorporate removal standards in addition to DHCD's standards when their local standards for continued participation are not met. Please consult with the EmPOWER partnering companies for requirements.

When DHCD determines that adequate grounds exist for removal, the SWC involved will be notified of the proposed removal by certified mail. The notice will provide:

- Fifteen (15) calendar days from the date the removal letter is mailed as the date of proposed removal
- A description of the grounds for the proposed action. Additionally, by the date of proposed removal, the SWC must provide DHCD with:
- A list of all work in progress
- Any extenuating circumstances which should be considered
- Any request that a conference be scheduled to present information and explanations on the proposed removal

## **3. Conference**

If DHCD does not receive a request from the SWC for a conference within fifteen (15) days from the date the removal letter is mailed, the SWC will be removed from the program as of the date of proposed removal. To request a conference with DHCD, the SWC should contact DHCD and provide an explanation of the actions in question.

At the conference a DHCD decision maker or his/her representative will meet with the SWC. Information and material providing the basis for the removal will be presented to the SWC and the SWC will be given the opportunity to present information and explanations relevant to the removal. At the conference, a reasonable time, not less than seven (7) days, may be set within which additional written material may be submitted by SWC member and, in exceptional circumstances, additional sessions may be scheduled to allow further oral presentations. Based on consideration of the presentations at the conference and any timely submitted additional written material, the DHCD decision maker or his/her representative will make a final decision. A copy of the final decision will be sent to the SWC member detailing the action to be taken, if any, and an effective date of removal, if applicable. By the date of removal, the SWC will be required to complete in a timely manner all outstanding work previously listed in progress or for which a signed contract existed on the notice date.

## **4. Emergency Removal**

Notwithstanding the normal notice provision, DHCD may remove an SWC from the MD WAP immediately upon making a determination that not to do so would pose an imminent danger to life, health, or property. DHCD will notify any contractor so removed by certified mail of the date of removal, the grounds for the action, and the opportunity to request a conference. If DHCD receives a request from the contractor for a conference within fifteen (15) days from the mailing date of the notice of immediate

removal, DHCD will schedule a conference with the contractor. After the conference, DHCD will promptly either confirm the removal or reinstate the contractor as an SWC.

## **5. Reinstatement Standards**

After any minimum removal period has expired, a contractor may apply for reinstatement as an SWC. A contractor may not be reinstated until all of the following conditions have been met:

- The contractor must meet the terms of their original bid
- The contractor must provide evidence satisfactory to DHCD that any problems that led to removal have been remedied.
- All outstanding work must have been completed in accordance with MD WAP requirements.
- In some cases the contractor may be required to provide additional assurances of responsibility satisfactory to DHCD (e.g., adequate assurances of timely payment to suppliers, satisfactory completion of additional training, etc.).

## CHAPTER 11

### RECORD KEEPING AND RECORDING

#### A. Hancock Energy Software (HES)

Hancock Energy Software (HES) tracks jobs from intake through completion and invoicing. The live data indicates the job status at any given time (e.g. scheduled, audited, in process, inspection, etc.). This assists DHCD in maintaining efficient program management and provides the live data for real-time reporting. The program includes an energy audit tool – Hancock Energy Audit Tool, or HEAT for short. This tool tracks a thorough property inspection. The auditor inputs the current property conditions, followed by the weatherization measures that are called for. This inspection data can be entered on-site (without the need for internet connection), thus ensuring program compliance and consistency throughout the network. Within HES, the work orders are issued and emailed directly to the contractors. In addition, HES manages separation of duties, ensuring that the auditors and quality control inspectors are completely separate from the contractors performing the weatherization work.

When work is completed, there is a monitoring feature within HES that allows DHCD to track every job through its inspection process. The efficiency of this process minimizes communication error, response time and customer inconvenience. This feature also prevents reporting a job to DHCD as a completed unit before all work is finished. Rework must be requested through HES; no additional invoicing is possible before state approval is granted through the software.

The State reviews complete details of every invoice that is submitted by the SWC. This is especially important regarding the weatherization measures, where prices and quantities are tracked. Cost reports within Hancock show measure use and costs by agencies to forewarn against any adverse trends.

The reports and controls are reviewed at management meetings on a weekly basis. HES ensures conformity on work practices throughout the network.

HES provides many reports of live data that are made possible by its all-inclusive, web-based platform. HES is accessible from offices, job sites, or contractors en route.

Upon completing the audit in HEAT, the Auditor enters the approximate prices into HEAT which runs a cost analysis of the materials and labor needed to totally weatherize the unit to determine the Savings to Investment Ratio (SIR). If the cost of WAP services does not exceed the allowable limits of expenditure as established by the SWC and the **Weatherization Assistance Agreement**, then all items/materials which pass the savings to investment ratio tests or are included on the list of measures must be installed on the dwelling unit. If the estimated WAP services exceed the expenditure limits, then the SWC must install measures in priority order according to health, safety and savings potential.

The SWC must request a waiver in writing from State WAP when service delivery exceeds the maximum limits established by policy. A waiver approval does not exempt the SWC from adherence to the average cost per unit expenditure limits.

#### Procedures

1. The SWC auditor will visit the dwelling and conduct an audit or estimate.
2. The auditor will complete the WAP Audit utilizing HEAT and will electronically develop a work order.
3. The Work Order will be completed in accordance with the instructions listed below. The estimated costs for each required service delivery option are calculated and placed on the form along with instructions relevant to completing the work required.
4. A copy of the estimated Work Order is to be provided to the crew/contractor in addition to other

pertinent information (e.g., blower door test results, furnace test results, etc.).

5. The auditor will complete the "actual" costs based on the invoice and submit the invoice in Hancock. A copy must be retained in the customer's file.

**B. Hancock Energy Audit Tool (HEAT) Instructions for completing the Work Order Form in HES**

1. SWC: Enter the Agency's Name.
2. WAP Job Control Number: Enter the job number from the application process as defined in the POM, Section V.
3. Customer's Last Name: Enter the family's last name.
4. First Name: Enter the first name of the "Applicant of Record".
5. M.I.: Enter the middle initial of the "Applicant of Record", if known.
6. Street Address: Enter the address of the property receiving WAP services.
7. City: Enter the name of the city from the application.
8. ZIP: Enter the zip code from the application.
9. Best Time to Contact: Enter the time the customer indicates would be best to be contacted to schedule the work to be performed.
10. Home Phone: List the home phone number of the customer.
11. Work Phone: List the work phone number of the customer. Make sure the customer is permitted to be contacted at the work site.
12. Message Phone: List the phone number if the customer indicates that messages can be passed through a third party.
13. WAP Contractor: List the crew/contractor assigned to provide the air infiltration reduction, insulation, water system treatment, repairs, and other services commonly referred to as "shell retrofits".
14. Date Assigned: Provide the date the work was assigned to the crew/contractor.
15. Furnace Contractor: List the licensed furnace service contractor assigned to provide the scope of work defined for the central heating system.
16. Date Assigned: Provide the date the work was assigned to the furnace contractor.
17. Health and Safety: List the instructions for providing health and safety related services to the property, including abatement protocols that must be followed. Health and Safety costs should be limited to \$500 on average. Health and Safety costs cannot exceed 15% of the average cost per dwelling unit maximum. Health and Safety measures are allowed to be conducted only where energy efficiency measures are identified for installation

18. Estimated Cost: This column is used to list the estimated costs as calculated by the auditor for each service activity.
19. Actual Cost: This column is used to list the actual costs as reported on the invoices from contractors or crew costs as calculated by the agency for each service category.
20. Air Filtration Reduction - Inside Temperature: Record the inside temperature of the property when the blower door test was taken. This could have an effect on the CFM flow at 50 pascals. The crew/contractor can make adjustments to account for temperature differentials.
21. Outside Temperature: Record the outside temperature when the blower door test was taken. This could have an effect on the CFM flow at 50 pascals. The crew/contractor can make adjustments to account for temperature differentials.
22. Wind Condition: Log the wind conditions at the time of the blower door test (e.g., calm, 15 MPH gusts, etc.). This could have an effect on the CFM flow at 50 pascals. The crew/contractor can make adjustments to account for temperature differentials.
23. Pre Test CFM: Enter the CFM air flow at 50 pascals from the pre-weatherization service blower door test. This figure is used to set the minimum reduction range.
24. Reduction Target: This is the minimum target CFM air flow at 50 pascals which should be achieved through the reduction protocols. The target range is the Minimum Ventilation Rate and this target figure.
25. Major Points of Infiltration Noted: While the majority of infiltration points may not be visible to the auditor, a list of the obvious reduction targets should be noted for the crew/contractor. This information will assist the quality control inspector in evaluating the work performed in this protocol.
26. Post Test CFM: Enter the CFM air flow at 50 pascals from the post-weatherization service blower door test. This figure must be within the reduction target range. If the crew/contractor was unable to reach the target, an explanation should be recorded.
27. Hot Water System: Describe the services to be applied to improve the domestic hot water distribution system including water heater insulation, pipe insulation, low flow water restriction devices, gas water heater testing/cleaning, and temperature set back.
28. Lighting Retrofit: Describe the location and types of replacement bulbs to be used in performing the lighting retrofit protocol.
29. Heating System Type: Describe the type of central heating system (e.g., hot air, hot water baseboard, etc.).
30. Fuel Type: Indicate the type of fuel used by the central heating system (e.g., natural gas, #2 fuel oil, kerosene, etc.).
31. Pre-SSE %: Enter the Steady State Efficiency percentage figure. The SSE is a measure of the performance of the central heating unit taken during the "On" cycle. A tape with the results of this test must be placed in the customer's file.
32. Services to be Performed: Describe the service to be performed by the licensed furnace contractor,

including any target efficiency to be reached. This section is for cleaning, tune-ups, retrofits, replacements, and minor/major repairs.

33. Post SSE %: Enter the Steady State Efficiency percentage figure from the second test taken following furnace service. A tape with the results of this second test shall be kept with the pre-test results in the customer file.
34. Attic Insulation - R-value of Existing Insulation: The auditor must provide the nominal R-value of any existing insulation found in the attic area. This figure is used to determine whether the utility company or DOE/EORTF will reimburse for the installation of insulation.
35. Materials/Location: Describe the type, and quantity of insulation to be installed, including specific instructions for installation method, access treatment, barriers required, and other special conditions related to the installation.
36. Wall Insulation - R-value of Existing Insulation: The auditor must provide the nominal R-value of any existing insulation found in the wall cavities. This figure is used to determine whether the utility company or DOE/EORTF will reimburse for the installation of insulation.
37. Materials/Location: Describe the type, and quantity of insulation to be installed, including specific instructions for installation method, access treatment, barriers required, and other special conditions related to the installation.
38. Floor Insulation - R-value of Existing Insulation: The auditor must provide the nominal R-value of any existing insulation found in the floor areas over unconditioned space. This figure is used to determine whether the utility company or DOE/EORTF will reimburse for the installation of insulation.
39. Materials/Location: Describe the type, and quantity of insulation to be installed, including specific instructions for installation method, access treatment, barriers required, and other special conditions related to the installation.
40. Duct System - Materials/Location: Describe the work associated with the repairs of all ducts, the insulation of ducts passing through unconditioned space, the balancing of return system when appropriate, and the sealing of ducts not included in the air infiltration reduction protocol.
41. Windows/Doors - Materials/Location: Describe the labor and materials required to install storm windows/doors and/or the primary windows/doors not calculated as a part of the air infiltration reduction protocol.
42. Incidental Repairs - Instructions: Describe those repair items which are required to effectively install any materials identified through the audit (e.g., roof repair, window/door repair, etc.). The total cost of the materials and labor associated with incidental repairs must work be included in the cost of the package of measures installed and must meet the Savings to Investment ratio (SIR) of the average job cost. An incidental repair means those repairs necessary for the effective performance or preservation of weatherization materials.
43. Additional Comments: Provide any additional comments the auditor believes will assist the crew/contractor in providing quality services.
44. Authorized Signature: This is the signature of the SWC staff person authorized to commit the resources of the WAP to the crews/contractors for provision of services.

45. Date: This is the date the agency representative signed the document authorizing the work to be performed.
46. Change Work Order Required: If a change to the Work Order was required, mark the "Yes" space. A copy of the change work order must be attached to the original Work Order. If no change order was required, mark the "No" space.
47. Value of Change Order: Provide the figure related to the change order. A change order is required when the difference is greater than or less than 10% of the Total Estimated Work Order in space #50.
48. Total Job Cost - Estimated: This is the estimated job cost for delivery of all service delivery options. This figure is used to determine the change order requirement.
49. Total Job Cost - Actual: This is the actual job cost for delivery of all service delivery options. This figure must match the DURl Total Charges.

### **C. Changes to Job Work Order**

A Change Work Order is required when the crew/contractor identifies services that can or should be installed and the increase will exceed 10% of the estimated amount.

A Change Work Order is not required if a service is deleted, however, the Work Order must contain the reason for the deletion, including the signature of the crew/contractor. If possible, the customer should also sign any service deletion. This should avoid future conflict when a customer believes they are entitled to a service and has failed to receive it.

The following are instructions for completing the Job Work Order Change Form

1. SWC: Enter the Agency's Name.
2. WAP Job Control Number: Enter the job number from the application process as defined in the POM, Section V.
3. Last Name: Enter the family's last name.
4. First Name: Enter the first name of the "Applicant of Record".
5. M.I.: Enter the middle initial of the "Applicant of Record", if known.
6. Street Address: Enter the address of the property receiving WAP services.
7. City: Enter the name of the city from the application.
8. ZIP: Enter the zip code from the application.
9. Original Estimate: Briefly describe the original services to be provided including the estimated cost.
10. Revised Estimate: Describe in detail the changes to the service delivery being requested. Include materials and location for installation when services are added.

11. Cost Differential: Enter the difference between the original estimated amount and the revised estimate based on service changes.
12. Total Value of Change Order: Enter the total of all differentials in #11 for service categories included on the Change Order Form
13. Authorized Signature: This is the signature of the SWC staff person authorized to commit the resources of the WAP to the crews/contractors for provision of services.
14. Date: This is the date the agency representative signed the document authorizing the work to be performed.

### **C. Documentation of Service Delivery**

The SWC must implement and maintain recordkeeping procedures that reflect effective and efficient program management and document all activities relating to delivery of WAP services to eligible households. The SWC is also required to generate accurate reports, regarding each WAP project and the status of the program.

The SWC must develop and maintain an organized and usable filing system containing the information necessary to prepare all required reports. It is the responsibility of the SWC to ensure that all WAP files are complete, accurate and accessible for review by State and federal staff.

#### **1. Customer Files**

A Customer File must exist for each WAP participant. If the SWC serves more than one political jurisdiction, the files should be arranged by county in either numeric or alphabetical order.

A complete customer record must be maintained in accordance with the systems outlined in Sections V, VI, and VII of this Manual and contain the following information:

- a. Release of Information
- b. Eligibility Notice
- c. Proof of Ownership
- d. HEAT Field Audit
- e. HEAT Audit Results (when applicable)
- f. Job Work Order in HES
- g. Special Order Forms
- h. Request for Additional Information (if applicable)
- i. Photo documentation of work or measures requiring prior approval
- j. Documentation of Working Lead Safe; photo documentation or test results

Applications pending action by the customer or the agency should be filed alphabetically by the customer's last name and should include the following:

- b. All Information Related to Customer Eligibility
- c. Request for Additional Information Form

Applicants denied for receipt of services should be filed alphabetically by the customer's last name

and should contain the following:

- c. Other Information Related to Customer Eligibility
- d. Denial Letter
- e. Request for Local Hearing (if applicable)

2. Multi-Family Building Files

The recommended system applies only to multi-family dwelling unit files completed under the 50% and 66% rules. It is recommended that the SWC files these alphabetically by building with individual household customers as sub-files. This method allows for quick review and tracking of multi-family buildings.

Each multi-family building file should contain at least the following:

- a. Lead file which contains the landlord/tenant agreement
- b. Individual file folders for each unit weatherized

A separate, complete application is required for each unit, whether the customer is eligible or not. Application information on INELIGIBLE applicants as they relate to the weatherization of multi-family buildings should be placed in a separate file.

3. Report Files

The Report File should contain copies of all reports that are submitted to the State WAP. It is the responsibility of the SWC to ensure that reports submitted are accurate and forwarded in a timely fashion. This file should contain any pertinent documents relating to external or internal reporting that the SWC performs.

4. Insurance Files

The SWC is required to maintain a file on all insurance coverage documents. The file should contain at least the following information:

- a. Type of insurance on buildings, contents, vehicles and equipment
- b. Agent or company providing coverage and telephone number
- c. Insurance carrier and how to contact for claims information
- d. Policy number and date of expiration
- e. A copy of all policies

5. Regulations Files

The WAP and DOE program regulations define activities that are permitted. It is important that these regulations are maintained and accessible for easy reference.

The file should contain at least the following:

- a. Program Operations Manual, transmittal letters, technical assistance letters and other directive or guidance documents relating to the WAP
- b. Department of Energy Federal Regulations (CFR 440) and amendments
- c. State Plan
- d. SWC Management Plan for current year

## **D. Use of Logs**

It is recommended that the SWC use a tracking system to maintain a continuous status of each application for WAP services. The use of "logs" can be useful in documenting activity for each case. The following are samples of logs used successfully in the past. While some logs are optional, those involving appeals and hearings are required.

1. An Application Log can be used to record referrals and applications taken on-site. As applications are received, each is logged in chronological order by the date of receipt. At a minimum, the log should contain:
  - a. Document Control Number
  - b. Name of Applicant
  - c. Date of Application
2. A Certification Log will track applications through the system. The log should contain all information recorded as part of the Application Log (#1) and the following:
  - a. Application Certification Number
  - b. Date Certified
3. A Denial Log **must** be maintained to record those applicants who are denied WAP services. The information on the log should be recorded chronologically by date certified ineligible. Additional information required for this log is as follows:
  - a. Document Control Number
  - b. Applicant Name
  - c. Reason for Denial (code)
4. An Estimation Log will track the progress of service delivery to customers who are certified to receive WAP services. The log should be maintained chronologically by month and include the following information:
  - a. Client Name
  - b. Date of Certification
  - c. Dates of Contact and Scheduling
  - d. Date of Estimation
5. A Complaint Log should be maintained to track the nature of customers concerns and the follow-up actions by program staff. The information should be logged chronologically as it is received and should include:
  - a. Complainant's Name
  - b. Document Control Number (if applicable)
  - c. Nature of the Complaint
  - d. Follow-up Action by Staff
6. A Hearing Log **must** be maintained to record the requests of customers' for a hearing at either the State or local level. This log should include the following information:
  - a. Applicant Name

- b. Document Control Number (if applicable)
- c. Nature of Hearing Request
- d. Date of Scheduled Hearing
- e. Results of Hearing

## **E. Invoicing**

Invoices will be developed in HES and must be submitted for each unit reported as completed by the SWC. The Invoice is used by the State WAP to document the following:

- 1. The customer's demographics;
- 2. EmPower Partner Utility Company participant
- 3. The costs associated with service delivery;
- 4. The distribution of charges between the federal and other funding sources; &
- 5. Testament by the contractor that the dwelling was eligible, completely weatherized, and all information provided is accurate.

Invoicing in HES will be used by the State WAP as an invoice for reimbursement. Complete and accurate information is essential to properly administer the WAP and for timeliness of reimbursement to local agencies. The information contained on the form will be used to:

- 1. Replace the data submitted on the Monthly Programmatic and Monthly Fiscal reports;
- 2. EmPower Partner Utility Company reporting on energy reduction
- 3. Serve as an official invoice from the SWC;
- 4. Develop reporting documents to utility companies for payment;
- 5. Capture all leverage activity occurring at the local level; and
- 6. Provide the information necessary to develop State and federal reports on the WAP.

The following instructions are provided to assist each SWC in standardizing the information to be submitted on the Invoice form

- 1. Agency: Enter the Agency's Name.
- 2. County Code: Enter the Agency's County Code from the Program Operations Manual (POM), Section V.
- 3. WAP Job Control Number: Enter the job number from the application process as defined in the POM, Section V.
- 4. Submission Date: Enter the Month/Day/Year that the dwelling is being submitted to the State WAP office for reimbursement.
- 5. Customer's Last Name: Enter the family's last name.
- 6. First Name: Enter the first name of the "Applicant of Record".
- 7. M.I.: Enter the middle initial of the "Applicant of Record", if known.
- 8. Street Address: Enter the address of the property receiving WAP services.
- 9. City: Enter the name of the city from the application.

10. ZIP: Enter the zip code from the application.
11. Electric Company: Enter the name of the electric utility company that serves the applicant at the address being weatherized. A copy of the customer's electric bill should be copied and maintained in the file.
12. Acct No: Enter the account number for the electric service for the address of the applicant. If the electric service is being paid by the landlord, or by someone else, please enter the information available (e.g., account number and the party responsible for payment). This information is essential if the unit is receiving utility funded services.
13. Gas Company: Enter the name of the gas utility company that serves the applicant at the address being weatherized. If not applicable, enter **N/A**.
14. Acct No: Enter the account number for the gas service for the address of the applicant.  
  
**NOTE:** If the gas service is being paid by the landlord, or by someone else, please enter the information available (e.g., account number and the party responsible for payment). This information is essential if the unit is receiving utility funded services. If not applicable, enter N/A. In circumstances where the electric and gas accounts are the same, do not use ditto (") marks. Enter the term "Same".
15. Family Size: Enter the number of persons residing in the dwelling as evidenced on the application. The "Family" may be extended and include everyone living at the subject property. Inhabitants need not be related. This information is primarily for reporting purposes. Utility companies will use this information to determine more accurate returns-on-investment and actual savings.
16. Children Under 5: Enter the number of children under five (5) years of age who reside in the dwelling as evidenced on the application.
17. Family Income: Enter the gross annual income as reported by the family and verified. This figure must coincide with information contained on the application.
18. Ethnicity: Enter the number from the "Ethnicity" codes found on the bottom of the DUR I which best relates to the Head of Household.
19. Elderly HOH: Circle the "Y" if the head of household is elderly (above 60 years old). Circle "N" in all other instances.
20. Handicapped HOH: Circle the "Y" if the head of household is considered legally handicapped. Circle "N" in all other instances.
21. Single HOH: Circle the "Y" if the head of household is a single parent. Circle "N" in all other instances.
22. Housing Type: Enter the number from the "Housing Type" codes found on the bottom of the DUR I which best describe the type of dwelling weatherized.
23. Own/Rent: Enter the number from the "Owner/Renter" codes found on the bottom of the DUR I which best represents the ownership of the dwelling.
24. Fuel Type: Enter the number from the "Fuel Type" codes found on the bottom of the DUR I which identifies the type of fuel used for the primary space heating system.

25. Hot Water Sys: Enter the number from the "Hot Water Sys" codes on the bottom of the DURI which identifies the type of hot water system found in the dwelling.
26. Furnace Service: Enter the number from the "Furnace Service" codes on the bottom of the DURI which best describes the type of service provided to the central heating system.
27. Fund Source: Enter the number(s) from the "Funding Source" codes found on the bottom of the DURI which represents the funding source(s) used in weatherizing the property.
28. Capital Intensive: Circle the "Y" if the dwelling unit received capital intensive services (e.g., a new central heating unit installed). Circle "N" in all other instances.
29. Re-Weatherization: A "Re-Weatherization" means any unit counted as a completion in the last 5 years and is now been deemed eligible to receive WAP services again. Circle the "Y" if the dwelling unit had been weatherized previously (e.g., received WAP services prior to September 30, 1994). Circle "N" in all other instances.
30. US Congress Dist: Enter the United States Congressional District where the subject property is located.
31. MD Senate Dist: Enter the Maryland Senate District where the subject property is located.
32. MD Legislative Dist: Enter the Maryland Legislative District where the subject property is located.
33. Total Charge: These figures represent the total costs to be charged for delivery of each of the following categories:
  - a. Health and Safety: Enter the total dollar amount in the appropriate space. Health and Safety addresses three issues. Refer to the POM, Section VII - Weatherization Priorities, for a more comprehensive description of these issues.
  - b. Air Infiltration Reduction: Enter the total dollar amount in the appropriate space. Refer to WAP's Air Infiltration Reduction Policy to determine allowable limits for reimbursement of labor and material for this protocol.
  - c. Hot Water System: Enter the total dollar amount in the appropriate space. Refer to the POM, Section VIII - Weatherization Standards, for a more comprehensive description of system treatment.
  - d. Lighting Retrofit: Enter the total allowable dollar amount in the appropriate space. SWC staff must perform lighting retrofit as a part of any program where electric companies are participating in joint service delivery.
  - e. Heating System: Enter the total dollar amount in the appropriate space. Refer to the POM, Section VIII - Weatherization Standards, for a more comprehensive description of furnace service delivery requirements. Do not enter figures which exceed the dollar amounts of the sub-contractors invoices unless evidence of additional costs are documented in the customer file.
  - f. Furnace Replacement: Enter the total dollar amount in the appropriate space. This figure should represent the labor and materials to remove the old central heating unit and install the new

central heating system. The customer file must contain Manual J and other support documentation.

- g. Attic Insulation: Enter the total dollar amount in the appropriate space. Refer to the POM, Section VIII - Weatherization Standards, for a more comprehensive description of attic insulation standards. If a discrepancy exists between the Auditor's notes and the List, the Auditor may elect to perform a NEAT audit to determine the effectiveness adding insulation.
  - h. Wall Insulation: Enter the total dollar amount in the appropriate space.  
Use the same evaluation criteria as Attic Insulation.
  - i. Floor Insulation: Enter the total dollar amount in the appropriate space.  
Use the same evaluation criteria as Attic Insulation.
  - j. Duct System: Enter the total dollar amount in the appropriate space.  
Refer to the POM, Section VIII - Weatherization Standards, for a more comprehensive description of duct system repairs and treatment.
  - k. Windows/Doors: Enter the total dollar amount in the appropriate space. This figure should represent the labor and materials to install storm windows/doors and/or the primary windows/doors installed but not calculated as a part of the air infiltration reduction protocol.
  - l. Incidental Repairs: Enter the total dollar amount in the appropriate space.  
Please note, the total cost of the materials and labor associated with incidental repairs must be included in the group of measures and the SIR must meet the 1:1.1 ratio.
  - m. Other: Enter the total dollar amount in the appropriate space. This figure represents costs not covered in the fore-mentioned categories yet required to complete the unit. A description of the service must be provided.
34. Charge to DOE/EORTE: Enter the dollar amount being charged to the DOE for each of the categories listed under #32 "a" through "m" above. The dwelling unit costs will be charged against the funding source identified on this form. Add all entries in this column and enter the figure in the "TOTAL" space.
35. Charge to ELEC UTIL: Enter the dollar amount for each of the categories listed in #32 "a" through "m" above that are being charged to the electric utility company's project or to the Electric Universal Service Program funding effective July 1, 2005, regardless of whether the funds are reimbursed through the WAP Agreement. Add all entries in this column and enter the figure in the "TOTAL" space. The dwelling unit costs will be accrued for the electric company identified on this form. If previously paid through another source of funds, please indicate by drawing a line through the numbers entered in the column.
36. Charge to GAS UTIL: Enter the dollar amount for each of the categories listed in #32 "a" through "m" that are being charged to the gas utility company's project, regardless of whether the funds are reimbursed through the WAP Agreement. Add all entries in this column and enter the figure in the "TOTAL" space. The dwelling unit costs will be accrued for the company identified on this form. If previously paid through another source of funds, please indicate by drawing a line through the numbers entered in the column.
37. Charge to OTHER: Enter the dollar amount for each of the categories listed in #32 "a" through "m" being charged to a funding source other than those contained in the WAP Agreement. This

can include: landlord contributions, Community Development Block Grant funds, special projects, donations from churches and civic groups, or other funds used to complete the WAP project. Add all entries in this column and enter the figure in the "TOTAL" space. If previously paid through another source of funds, please indicate by drawing a line through the numbers entered in the column.

38. Invoice Total: These spaces will be used to enter the total amount of charges for all services including Program Support in by funding source. These figures will be used to calculate cost per unit averages, as per the WAP Agreement and POM.
39. Recorded Computer: This space represents the date the State office staff recorded the completed unit into the database for reimbursement and report generation. The date recorded will determine the month in which the dwelling unit will be reported.
40. Certified As Complete: The person whose signature appears on this line is certifying that the applicant is eligible to receive weatherization services and that the unit is complete. The person whose signature appears on this line may not sign under "AGENCY DESIGNEE". Only persons whose signature has been registered with the State office may sign in this space. Unauthorized signatures will **NOT** be accepted and the unit will be returned to the agency for correction.
41. Date: Enter the date the 'certified as complete' is signed.
42. Agency Representative: The person whose signature appears on this line is certifying that the charges for labor and materials are appropriate and reimbursement by the State for these expenses is warranted. The person whose signature appears on this line may not sign under "Certified as Complete". Only persons whose signature has been registered with the State office may sign in this space. Unauthorized signatures will **NOT** be accepted and the unit will be returned to the agency for correction.
43. Date: Enter the date the 'certified as complete' is signed.

**NOTE:** Under no circumstances may the SWC change any category or reporting requirements contained on this form without written consent by the State WAP. Any altered document will be returned to the SWC for re-submission in the proper format. The Department reserves the right to correct the agency's DUR submission and will provide the agency with a copy of the changes.

## **F. SWC Reimbursement**

The State WAP will reimburse the SWC for approved expenditures related to the successful delivery of services to eligible dwelling units. Only those costs related to units deemed as complete by standards set forth in the POM can be reimbursed. The reimbursement of expenses will be based on information provided in HES and submitted to the State office for each dwelling unit weatherized by the SWC after the signed and dated Quality Control form is received.

Reimbursement will occur for expenses incurred in the following categories:

1. The cost of weatherization materials as allowed by federal regulations 10CFR Part 440, Appendix A and the POM;
2. Reasonable labor costs to install those materials on the homes of eligible families;

The total allowable reimbursement is limited to the amount designated for each funding source provided in the executed Weatherization Assistance Agreement. Expenses must have occurred within the Performance Period of each funding source per the Agreement to be eligible for reimbursement.

The invoice will serve as the request for reimbursement. This form must be complete, accurate, and contain all expenses related to providing WAP services to the subject property. The State office will process reimbursement requests after receipt of the quality control inspection form indicating the subject property is complete and acceptable.

Material and labor costs will be reimbursed as reported in each category of the invoice.

#### **H. SWC Fiscal Records**

The accounting for expenditures will be performed by the Accounting Department already established within the SWC. DHCD will review and evaluate measures subject to pricing per industry standards and comparable with local pricing. WAP fund sources must be assigned a specific cost category from an acceptable Chart of Accounts, so that all costs related to individual funding sources can be easily identified.

## Chapter 12

### FORMS

(NOTE: Forms mentioned in the manual but not found in  
Chapter 12 may be obtained from DHCD.

**PERMISSION TO ENTER PREMISES**  
**MARYLAND WEATHERIZATION ASSISTANCE PROGRAM**

**TO THE BUILDING OWNER:**

Your building is being considered to receive services under the Weatherization Assistance Program (WAP). The WAP is funded by the United States Department of Energy (DOE) and administered in Maryland by the Department of Housing and Community Development (DHCD). The WAP operates under the rules and regulations of both USDOE and DHCD that have certain requirements of which you, as a building owner, should be aware. At the bottom of this page is a form granting your permission for the SWC to enter your building to perform an audit and collect eligibility documentation from your tenants.

Before the work begins on your building, you will be required to sign a Building Owner Agreement, a copy of which is attached for your review. WAP may require a financial commitment from the building's owner(s) for each building containing rental units. These funds provided by owners are used to supplement the weatherization activity. Exceptions to this requirement can be made when the owner is an eligible applicant or where hardship of the owner can be proven. This investment can take several forms and is dependent on the results of the energy audit. When the audit is complete the local weatherization agency will meet with you to discuss your building's energy conservation potential, your financial commitment to the project and the Owner Agreement.

After weatherization services have been provided, the SWC is required to conduct a quality control inspection to ensure that work was completed in accordance to the standards set forth by the WAP. It is your responsibility to assist the SWC staff in gaining entrance to your property. Refusal to assist the SWC staff in the discharge of their duties regarding quality control inspections is cause for the reimbursement of the costs and related fees for the weatherization services.

**PERMISSION TO ENTER PREMISES**

I, \_\_\_\_\_ as owner/authorized agent for the building located at \_\_\_\_\_  
\_\_\_\_\_ have read and understand the above and hereby grant permission for representatives of \_\_\_\_\_  
to enter these premises for the purposes of conducting an energy audit and collecting eligibility documentation from the residents. I also accept the conditions of the required audit fee, under the conditions above.

**Owner's Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Agency Rep:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**(RPIP-1)**  
**(Rev 05/2009)**

## **WAP INFORMATION SHEET**

### **MARYLAND WEATHERIZATION ASSISTANCE PROGRAM**

The Weatherization Assistance Program administered by the State of Maryland is a means of improving the energy efficiency of a dwelling unit to produce fuel savings in the homes of low-income, elderly and disabled persons. The program is funded annually by the U.S. Department of Energy, utility companies and other sources. Application for assistance under the program is made to local agencies, which are independent contractors for the State of Maryland or to the local Maryland Energy Assistance Program (MEAP) office.

After approval of the application, the SWC conducts a comprehensive professional energy audit of the applicant's home. Based on the results of the audit and depending on available funds, the SWC installs, or causes to have installed, weatherization measures in the applicant's home which have been determined to be the most cost-effective in reducing the applicant's energy consumption while increasing comfort, which may include insulation of attics. The measures that may be indicated by the audit fall into four major categories:

1. **Heating Efficiency:** These measures are designed to improve the operation of the system which delivers heat to the dwelling unit and may include a cleaning and tuning of the furnace or boiler, repairs, and modifications, as needed. This category also includes distribution system service including repair of duct work, repair or replacement of circulator pumps, replacement of steam vents, system balancing, etc.
2. **Infiltration Measures:** These are measures designed to reduce the air changes between the interior and the exterior of the dwelling unit. Included in this category are: weather-stripping, caulking, repair or replacement of broken windows and exterior doors, sill plate sealing/insulation, etc.
3. **Conduction Measures:** These are measures designed to reduce the conduction of heat from the interior to the exterior of the dwelling unit. This category consists primarily of attic, floor, perimeter, water heater, pipe and heat duct insulation and ventilation where appropriate.
4. **Repairs:** This category includes any repairs that may be needed to preserve, protect or allow for the installation of weatherization materials.



## Weatherization Deferral Form

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Project Number

Audit Date

Client Name

Address

City & Zip Code

Home or Message phone

Work Phone

Deferral of weatherization work on the above home is based on the following conditions:

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Recommended measures for remedying the existing conditions are as follows:

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I certify that the above information is complete and accurate.

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Signature of Agency Representative Date

**Client Information:** I understand weatherization work has been deferred on my home for the above reasons. I understand the conditions under which weatherization work may continue. I understand I must contact the weatherization agency within 12 months of original application date if conditions have changed and that these changes may allow work to resume. I understand if I contact the weatherization agency more than 12 months after the original application date I need to reapply for weatherization services.

---

Client Signature Date

(LETTERHEAD)

Applicant Name  
Address  
City, MD, ZIP

Application Date: \_\_\_\_\_  
Document Control: \_\_\_\_\_  
Center Code: \_\_\_\_\_

Date:

Dear

Your application to receive services from the Weatherization Assistance Program (WAP) has been denied for the following reason(s):

- ( ) Your total household income of \$\_\_\_\_\_ per month as computed by WAP exceeds the eligibility standard of \$\_\_\_\_\_. If you have a change in your income or family size, you may file another application 30 days after the date of your previous application. (D1)
- ( ) You did not provide complete proof of household income by the specified date of \_\_\_\_\_. (D2)
- ( ) You did not provide \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ that was requested of you by the specified date of \_\_\_\_\_. (D3)
- ( ) Your household has previously received full weatherization services on \_\_\_\_\_. (D4)
- ( ) Other: \_\_\_\_\_ (D5)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If your circumstances change, you may file another application on or after \_\_\_\_\_. This date is 30 days after the date of your previous application. (Examples of changes in family circumstances are: changes in family size or changes in family income). Please bring this letter with you when you re-apply.

**(VI-A) (Denial Letter)**  
**(Rev 05/2009)**

## **YOUR HEARING RIGHTS**

You have the right to appeal this decision if:

1. Your application is denied; or
2. Your application is neither approved nor denied within 10 days after all required information has been furnished by you.

If you wish to appeal the decision, you must complete the attached form and return it to us by \_\_\_\_\_. If you need assistance in completing the form, please call \_\_\_\_\_ on \_\_\_\_\_.  
Telephone No.

Available legal services to provide representation at the hearing can be obtained through your local legal aid office.

Sincerely,

\_\_\_\_\_  
Title

Enclosure: Request for Review of Decision

cc: Applicant's Denial File

**(VI-B) (Your Hearing Rights) (Rev 05/2009)**

**REQUEST FOR REVIEW OF DECISION**  
**WEATHERIZATION ASSISTANCE PROGRAM**

**TO:** (SWC must provide its name and address)

**FROM:** Your Name: \_\_\_\_\_

Your Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Your Home Telephone Number: \_\_\_\_\_

Your Work Telephone Number: \_\_\_\_\_

Other telephone number where  
you can be reached \_\_\_\_\_

I request a review of your decision because:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

**(VI-C) (Rev 05/2009)**

(SWC LETTERHEAD)

(Date)

(Applicant Name)  
(Address)  
(City, State, Zip)

Dear

In response to your request for appeal, a local hearing has been scheduled on \_\_\_\_\_  
(DATE) \_\_\_\_\_ at \_\_\_\_\_ (TIME) \_\_\_\_\_. The site of the hearing is  
\_\_\_\_\_. (LOCATION) \_\_\_\_\_.

Please bring the following information to the hearing:

\_\_\_\_\_  
\_\_\_\_\_

You may provide additional information that you feel will be helpful in resolving your complaint. You may bring another person to represent you if you wish.

We hope to resolve your concerns as soon as possible. If you have any questions, do not hesitate to contact \_\_\_\_\_ at \_\_\_\_\_. Please call the Weatherization office at least 5 days prior to the hearing if you cannot appear on the scheduled date and time.

Sincerely,

SWC Program Director

cc: Customer File

**(VI-D) (Rev 05/09/2009)**

(SWC LETTERHEAD)

(Date)

(Applicant Name)

(Address)

(City, State, Zip)

Dear

This letter conveys the decision reached by this agency at the hearing held on

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

If you wish to appeal this decision, you must return the form attached by  
\_\_\_\_\_ in order to be scheduled for a State level hearing. If you need assistance in  
completing the form, please contact \_\_\_\_\_ at \_\_\_\_\_.

Sincerely,

\_\_\_\_\_  
SWC Hearing Officer

**(VI-E) (Appeals Decision Letter) (Rev 05/09/2009)**

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**TO:** (Program Director)

(SWC Name and Address)

**FROM:** Your Name: \_\_\_\_\_  
Your Address: \_\_\_\_\_  
Phone Where You May Be Reached: \_\_\_\_\_

I request a State hearing on your decision because:  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Date Your Signature

THIS FORM MUST BE RETURNED BY: \_\_\_\_\_(Date)\_\_\_\_\_

**(VI-F) (Request for State Hearing) (Rev 05/02009)**

(Date)

(Applicant's Name)  
(Address)  
(City, State, ZIP)

Dear

This is in response to your request for a State-level hearing by the Maryland Office of Weatherization Assistance. We have scheduled a hearing on \_\_\_\_\_ at \_\_\_\_\_. The site of the hearing will be: \_\_\_\_\_. Mr./Ms. \_\_\_\_\_ will be the Hearing Examiner for your case. This Officer can be reached by contacting the office at \_\_\_\_\_.

If you cannot appear on the scheduled date and time, please contact the Hearing Examiner at least five (5) days before the date. Failure to appear at a scheduled hearing, without prior notification to the Hearing Examiner will result in a decision based solely on the materials in your case file.

If you would like to review your case file before the hearing, please contact the local Weatherization office \_\_\_\_\_.

Sincerely,

James J. McAteer, Program Manager  
Weatherization Assistance Program

Enclosures  
cc: SWC  
Hearing Examiner

(VI-G)  
(Rev 05/2009)

# Renovate Right Pre-Renovation Form

This form may be used to document compliance with the requirements of the Federal Lead-Based Paint Renovation, Repair, and Painting Program.

## Occupant Confirmation

### Pamphlet Receipt

\_\_\_\_ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

---

Printed Name of Owner-occupant

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Signature of Owner-occupant

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Signature Date

### Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

\_\_\_\_ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

\_\_\_\_ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

---

Printed Name of Person Certifying Delivery

---

Attempted Delivery Date

---

Signature of Person Certifying Lead Pamphlet Delivery

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Unit Address

**Note Regarding Mailing Option** — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least 7 days before renovation. Mailing must be documented by a certificate of mailing from the post office.